Acorn A3010/A3020/A4000 Technical Reference Manual

Contents

Part 1 – System description

This manual describes the Acorn A3010, Acorn A3020 and Acorn A4000 computers. The following table summarises the main features of and differences between the models.

Figure 1.1 is a block diagram of the main system components.

Feature	A3010	A3020	A4000
Design	Single box	Single box	Twin box
Computer system IC	12MHz ARM250	12MHz ARM250	12MHz ARM250
Base memory	1MB DRAM	2MB DRAM	2MB DRAM
Memory expandable to	2 or 4MB	4MB	4MB
Operating system	RISC OS 3 in 2MB of ROM	RISC OS 3 in 2MB of ROM	RISC OS 3 in 2MB of ROM
Floppy disc	2MB (1.6MB formatted)	2MB (1.6MB formatted)	2MB (1.6MB formatted)
Hard disc	N/A	Optional internal 2.5 inch IDE	Optional internal 3.5 inch IDE
Video output	Multi-frequency analogue RGB	Multi-frequency analogue RGB	Multi-frequency analogue RGB
Audio output	Stereo 3.5mm 32Ω	Stereo 3.5mm 32Ω	Stereo 3.5mm 32Ω
Speaker	Mono, internal	Mono, internal	Mono, internal
Keyboard	103 switch, integral	103 switch, integral	103 switch, separate
PSU	10W	12.5W	24W
Colour TV modulator (mono sound)	✓	✗	✗
Internal 8-bit expansion slot	✓	✓	✓
Internal network expansion slot	✗	✓	✓
Switched joystick inputs	2	✗	✗
Serial port	✓	✓	✓
Parallel port	✓	✓	✓
Real time clock + config. memory	✓	✓	✓
Rechargeable battery to power RTC	✓	✓	✓
3-button mouse	✓	✓	✓
Electronic identity number	✓	✓	✓

Figure 1.1: System block diagram

Figure 1.2: System memory map

	Read	Write	Hex address
64M	Hi ROM	MEMC CAM	3FFFFFF
56M			3800000
	Lo ROM	MEMC DMA generators	3600000
		VIDC registers	
52M			3400000
48M	Input/Output devices		3000000
	Physical DRAM		
32M			2000000
	Virtual memory		
			0000000

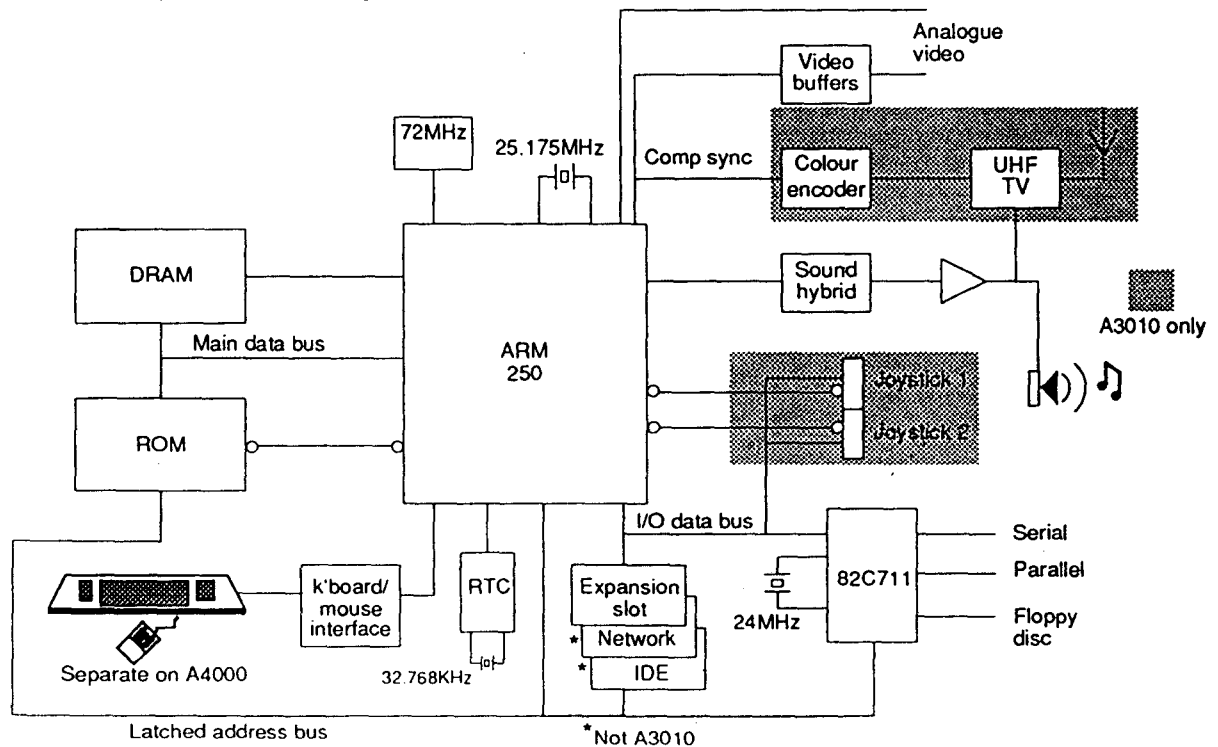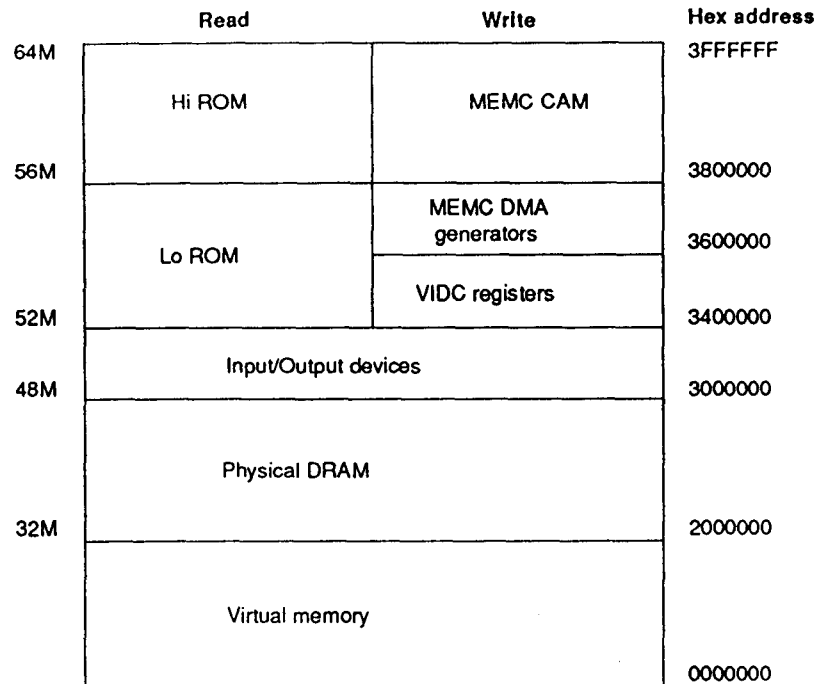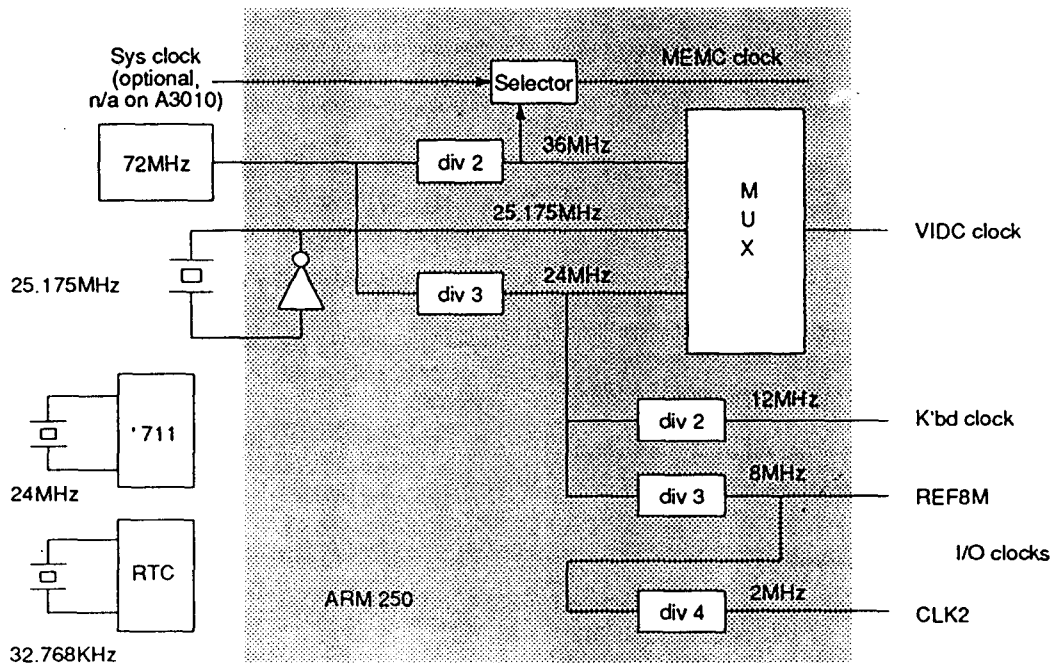**Figure 1.3: System timing**

Byte accesses

Byte instructions should be used to access I/O devices. For a byte store instruction, the CPU copies the byte to all four bytes in the data word, thus the byte code is placed on the lowest byte of the I/O data bus. A byte or word load will read an I/O byte into the lowest byte of an ARM250 processor register.

The I/O system includes the following devices:

- Internal Expansion card slot(s)
- Two Joystick input ports (A3010 only)
- 82C711 Universal Peripheral Controller:
  - serial port
  - parallel port
  - Floppy disc controller
  - IDE hard disc (not A3010)
- RTC
- Keyboard microcontroller

I/O devices in the ARM250:

- IOC
- Monitor ID register
- Device ID register
- Video control register

Note, the RTC and keyboard micro are accessed via IOC registers.

I/O system

There are two basic types of I/O device access:

- IOC-controlled, where IOC sequences the interface control signals and returns IOGT to MEMC1a.
- Non-IOC-controlled – separate logic must detect IORQ, manage any interface signals, and generate IOGT.

The I/O address determines if a cycle is IOC or non-IOC-controlled. The upper half of I/O address space is the IOC-controlled area. There are four varieties of IOC-controlled cycle: slow, medium, fast and synchronous. The I/O address determines which type/speed of I/O access is used. All IOC cycles are clocked at 8MHz. 82C711 data transfers occur in non-IOC space. ARM250 includes a state machine clocked at 12MHZ, which generates the 82C711 control signals, bus latch signals and IOGT. These signals are internally logically mixed with the matching signals generated during an IOC-controlled cycle.

I/O transfers with the expansion card are always referenced to the REF8M 8MHz clock. Expansion card I/O can be IOC controlled or the card can provide its own IOGT, to create non-IOC controlled cycles.

Only one expansion card slot is present (PS1) and only one non-IOC 'module' slot is decoded (MS1). These are connected to the single internal expansion upgrade connector. The upgrade slot is mechanically compatible with the A3000 internal upgrade card. The slot complies with the electrical specification for Archimedes computers expansion cards and so most A3000 internal expansion cards should work without modification.

Appendix B –Timing diagrams contains example signal waveforms for IOC-controlled (PS1) expansion card operations.

Expansion card identification

It is important that the computer checks whether an expansion card is present. This is done by reading the Podule (expansion card) Identification (PI) byte, or bytes, from the Podule Identification Field.

For a full description of the ID field refer to the *Acorn expansion card specification* (Part number 0472,200).

Joystick interface (A3010 ONLY)

Application programs should access the joystick ports by using the system calls provided in the operating system. The calls are described in the *RISC OS 3 Programmer's Reference Manual*.

There are two switched joystick input ports. They are functionally identical. Only the address used to read in the switch status distinguishes the two ports. Each port has five input lines connected to the least significant five data lines. The three remaining data lines of the byte are pre-wired to return 011. This allows the system software to detect the existence of the interface hardware.

When the joystick address is accessed, a select line turns on the ports tri-state buffer, which puts the previously latched switch state onto the I/O data bus from where the ARM250 reads it. The end of the access cycle latches the current switch state, ready for the next read operation. This allows the logic value in the buffer chip to settle and reduces meta-stability risks to the minimum.

Network interface expansion (not A3010)

The A3020 and A4000 models include an expansion slot for a network interface card (e.g. Econet or Ethernet). Details of the expansion slot signals, mechanical constraints and connector placements are fully described in the *Network Expansion Specification* (Acorn Part No. 0472,206). The internal signals are listed in *Sockets* on page 1-21.

The 82C711 Universal Peripheral Controller

A floppy disc controller, serial port and parallel port, are integrated into the 82C711 Universal Peripheral Controller chip.

The 82C711 is accessed at 12MHz. A transfer takes six clock cycles. The interface signals are generated by a state machine in the ARM250.

Example timing diagrams for data transfers with the 82C711 are given in *Appendix B –Timing diagrams*.

The floppy controller is programmed for DMA data transfers although the ARM250 reads and writes data using programmed I/O. A floppy controller DRQ causes a FIQ interrupt (via IOC) to initiate each data byte transfer. The I/O address is decoded to generate DACK and TC strobes. DACK is generated over a large 24KB address range, which allows one cylinder of a floppy disc to be transferred without resetting software pointers. A DMA transfer is terminated when the TC strobe occurs in combination with the DACK strobe.

System IRQ Interrupt Events

- PFIQ, SIRQ, SINTR, IL3, FINTR, PIRQ, LPINT, INDEX, VFLYBK.

System FIQ interrupt events

- FDDRQ
- Control port inputs C[3:4].

The IRQ events are split between two register sets, A and B. There is no priority encoding of the sources.

Table 1.3: IRQ status A

Bit	Name	Function
0	LPINTR	Parallel port latched interrupt
1	-	Not used
2	INDEX	Start of floppy disc index pulse
3	VFLYBK	Start of display vertical flyback
4	POR	Power-on reset has occurred
5	TM0	Timer 0 event, latched
6	TM1	Timer 1 event, latched
7	FORCE	Software generated IRQ

Table 1.4: IRQ status B

Bit	Name	Function
0	PFIQ	Podule FIQ request
1	SIRQ	Sound buffer pointer used
2	SINTR	Serial line interrupt
3	IL3	IDE interrupt (not A3010)
4	FINTR	Floppy disc interrupt
5	PIRQ	Podule IRQ request
6	STX	Keyboard transmit register empty
7	SRX	Keyboard receive register full

Table 1.5: FIQ interrupt status

Bit	Name	Function
0	FDDRQ	Floppy Disc Data Request
1	-	not used
2	EFIQ	reserved for Network use
3	C3	Used as an I/O bit
4	SINTR	Serial Line interrupt
5	-	not used
6	PFIQ	Podule FIQ request
7	Force	Software generated FIQ Interrupt

Control port

Reading the control register gets the state of the C[5:0] control port pins and the status of the IF (INDEX) and IR (VFLYBK) inputs. Writing a logic 0 to a control port bit drives the corresponding C[0:4] open drain output **low**. Writing a logic 1 allows the port to be used as an input.

Control register bits are set to 1 by a system reset.

Only C[0:3] are available on the ARM250.

- C4 is internally connected to IL2.

C5 input is internally wired to logic 1.

Table 1.6: Control register bit settings

Bit	Name	Function
C7	VFLYBK	Allows the state of VFLYBK to be inspected. Reads HIGH during vertical flyback and LOW during display. See VIDC data sheet for details. This bit MUST be programmed HIGH for normal system operation.
C6	INDEX	Allows the state of the floppy disc drive INDEX signal to be inspected. This bit MUST be programmed HIGH for normal system operation.
C5		Not used, always reads 1.
C4	SINTR	Used as the Serial Line Interrupt Request, and must be programmed HIGH.
C3	C3	Electronic machine number.
C2	C2	Floppy disc media density flag.
C[1:0]	SDA, SCL	Used to implement the bi-directional serial I2C bus to the Real Time Clock.

Other ARM250 I/O ports

Video control latch (&3350048)

This latch is a write-only register that is used by the operating system to control video sync polarity and clock speed (see *Video circuit* on page 1-11 for details).

Table 1.7: Sync polarity

| VC1 | VC0 | Sync polarity | | VC3 | VC2 | Clock speed |
		V	H			
0	0	+ve	+ve	0	0	24 MHz
0	1	+ve	-ve	0	1	25.175 MHz
1	0	-ve	+ve	1	0	36 MHz
1	1	-ve	-ve	1	1	Reserved

Printer interrupt clear register (&3350058)

A read or write to this register (any data value) will clear the Printer Port Interrupt Request. The Interrupt Request is also cleared by Reset.

Device ID register (&3350050)

This is a read-only register which returns the value 0101 (Hex. 5) on the lower four data bits; all other bits are undefined.

Monitor ID register (&3350070)

This is a read-only register. It returns the state of the four monitor identity code bits on the analogue video connector (see *Video circuit* on page 1-11 for details).

The 82C711 supports both MFM and FM recording. Older Acorn formats (as well as IBM formats) can be read, written and formatted as listed below. In addition, a new 1.6MB ADFS F format is supported at a data rate of 500Kbps. This format has 10 x 1024 byte sectors per track (each side) with a 1 sector skew between the two sides of the disc.

Formats supported:

- Archimedes ADFS F MFM 500kHz (read/write/format)
- Archimedes ADFS L, D and E MFM 250kHz (read/write/format)
- Master ADFS S and M MFM 250kHz (read/write).

The controller can also read and write the DFS disc format (FM 125kHz). However, RISC OS 3 does not include a DFS format option. A DFS read/write utility must be loaded to access DFS format discs.

Discs formatted using a 82C711 disc controller are not physically identical to those produced with a 1772 controller. However, this should not affect interchangeability between 82C711- and 1772-based machines. The leading Index address field feature forces discs formatted as ADFS L format (16 x 256 byte sectors/track) to have a reduced inter-sector gap and thus be more susceptible to drive speed variation greater than 1.5%. This will only be a problem when interchanging ADFS L format discs between poor quality disc drives.

Software

The floppy disc driver software supports the MultiFS specification; this allows RISC OS to read/write discs from most common computer systems, which use IBM/ISO disc formats.

At power-on, if one or more floppy drives are configured for, in CMOS RAM, the 82C711 driver software determines where floppy drives are attached. A restore operation is performed on each possible drive (in the order 0,1,2,3). If the track 0 indicator goes low, a drive is present. Although RISC OS 3 supports multiple floppy drives, there is no expansion option built into the computer.

The PSU is not designed to power additional drives. RFI considerations make provision of an external drive connector prohibitively expensive.

For consistency with the original 1772 driver software, it is possible to *Configure step rates of 2, 3, 6 or 12ms on a drive-by-drive basis. However, the step rates provided by the '765 controller depend on the data clock and it is not always possible to set exactly the step rate configured.

Note that in single- and double-density modes selection of the 12ms step rate actually results in a 26ms rate – this is intentional, to support use of older 40/80 track 5.25" disc drives.

The following table shows the configured and actual step rates used for various data clock rates:

Table 1.9: Step rates

configured step rate	actual step rate			
	125Kb/s	250kb/s	300kb/s	500kb/s
2	2	2	1.7	2
3	4	4	3.3	3
6	6	6	6.7	6
12	26	26	25	12

The performance parameters of the drive, together with a description of the interface signals, are given below.

Drive input signals

MODE SELECT

Logic 0 selects 1MB mode, logic 1 selects 2MB mode.

DRIVE SELECT 0

This signal selects drive 0, the internal drive. A drive will only respond to an interface signal when selected (except for MOTOR ON). The drive select switch (on the drive) is set to Drive 0.

MOTOR ON

Spindle motor rotates when MOTOR ON is active AND a floppy disc is in drive unit.

DIRIN

When logic 0, a STEP pulse moves the head in, towards the spindle. When logic 1, a STEP pulse moves the head away from the spindle.

STEP

A STEP pulse moves the head in or out one track, depending on the polarity of DIRIN. Stepping to negative tracks is inhibited by the drive.

WRITE DATA

Serial data written to the disc. The drive gates this signal with WRITE ENABLE. Data is not recorded if the disc is write-protected.

WRITE ENABLE

Logic 0 turns on drive's write circuits. The drive delays side-switching and head-stepping until the internal trim erase process is completed.

SIDE 1

Logic 0 selects the upper head. Logic 1 selects the lower head.

Drive output signals

INDEX

Index pulses are generated by the drive when the drive is Selected and the drive is ready.

TRACK 0

This signal is logic 0 when the head is positioned over track 0 as determined by the track 0 sensor (with or without a disc inserted).

IDE hard disc interface (not A3010)

Both A3020 and A4000 models have a 16-bit I/O interface, extended specifically to support an internal IDE drive. The PC I/O control (82C711 or equivalent) generates IDE interface control signals. It includes the address decoder logic for two drive selects. However, the system power supply and mechanical design limit both products to only one drive via this interface. Note that it is possible to add a drive by using the internal upgrade expansion port.

The upper 8 bits of the extended I/O bus use two latching buffer ICs to interface the slow I/O bus to the main CPU bus. The lower 8 bits are handled by logic in the Arm250. All the buffer control signals are generated by the ARM 250. On the A4000 an additional buffer isolates the IDE hard disc from the lower 8-bit I/O data path. This is to allow for a longer drive data cable and possible additional signal loading.

The IDE disc interface is PL25 on an A4000 and PL10 on an A3020. The signals are shown in *Table 1.13*.

Table 1.13: IDE hard disc interface signals

Pin	Signal	Pin	Signal
1	$\overline{RST}$	2	0V
3	IDED7	4	BD8
5	BD6	6	BD9
7	BD5	8	BD10
9	BD4	10	BD11
11	BD3	12	BD12
13	BD2	14	BD13
15	BD1	16	BD14
17	BD0	18	BD15
19	0V	20	nc
21	nc	22	0V
23	$\overline{IOW}$	24	0V
25	$\overline{IOR}$	26	0V
27	IORDY (pull up) A4000 nc A3020	28	nc
29	nc	30	0V
31	Interrupt	32	$\overline{IOCS}$
33	LA3	34	pull-up
35	LA2	36	LA4
37	$\overline{HDSC0}$	38	$\overline{HDSC1}$
39	nc	40	0V
The following signals are only on the A3020 interface:			
41	5V	42	5V
43	0V	44	pull-up

Video circuit

Each Video output signal from the ARM250 (generated by VIDC1a), is a current sink with respect to the filtered video 5V supply. The signals (Red, Green and Blue) generate a voltage across a sense resistor and a common super diode, formed by a PNP transistor.

The voltage across the sense circuit is converted to an output current per colour, by a PNP transistor emitter follower. The A3020 and A4000 have a single emitter-follower per colour, for the monitor signals. The A3010 has a pair of emitter-followers for each colour (one for the monitor O/P, the other for the TV colour encoder circuit). The RGB monitor output components are protected from transients by a three diode circuit for each colour signal. A 220Ω load resistor limits the maximum unterminated voltage at each transistor collector; this ensures the transistor does not saturate and disturb the sense resistor signal. In normal use the RGB outputs generate an analogue 0.7V peak signal into an external 75Ω load to 0v/ground.

Separate or composite sync signals can be generated by ARM250; selection is software controlled. When selected, the composite sync signal appears on the Vertical sync line. Sync signal outputs use a CMOS driver, with a 68Ω resistor in series. The sync output can drive a monitor with TTL level inputs, typical of VGA and multifrequency monitors, or an analogue 75Ω terminated sync input.

A PC VGA-style 15-way D-type socket is used for the monitor output. The pin functions are similar to the industry standard for VGA.

The differences are:

- Pin 9: +5V supply for SCART fastblank (normally used for keyway) protected by a fuse.
- Pin 12: ID1 input, has a 1k5Ω resistor to +12V, for SCART TV function switching.
- Pin 15: ID3, fourth monitor type ID input.

Monitors designed for use with VGA display cards (using a 15-way connector) use an identification coding system (ID) with three or four bits. ID bits are connected to 0V or left open circuit by the monitor, or the video cable. The computer operating system reads the ID code to determine the type of monitor connected. For example, a mono VGA monitor connects ID1 to 0V, leaving ID0, ID2 and ID3 open circuit. ID0,2,3 have 4K7 pull up resistors to 5V. ID1 has a 1k5 pull up to 12V. The +12V level allows the line to act as the SCART control signal – CVBS. There is series resistor and clamp diode to limit the voltage applied to the ARM250 ID1 input.

If needed, SCART fastblank can be connected to the 5V output on pin 9, via a series resistor in the cable. See *Fuse ratings and power allowances* on page 1-18.

After power-on or a hard reset, the operating system will read the monitor ID. If the three configuration options – MONITORTYPE, SYNC and WIMPMODE – are set to AUTO (e.g. *Configure SYNC AUTO), the operating system will select MonitorType, Sync and Wimpmode

Audio circuit

A hybrid module contains most of the audio circuitry. The module accepts the four audio signals left+, left-, right+ and right-, output by VIDC1a (in the ARM250). These are summed and filtered, then buffered out as left and right low impedance signals. Coupling capacitors connect the hybrid output to the 3.5mm headphones socket. The signal is suitable for driving 32Ω headphones. If a lower impedance load is connected, clipping will occur at signal peaks.

Mono sound is provided by an internal 8Ω speaker, driven by an LM386 amplifier. The signal for the LM386 is derived by summing the stereo signal from the switched headphones socket. There is no mute circuit; the internal sound is 'disabled' when a plug is inserted in the headphones socket.

The switched mono sound signal from the LM386 is also used to drive the sound I/P of the TV modulator.

ARM250 sound system support

The MEMC1a block in ARM250 provides three internal DMA address registers to support sound buffer output. These control the DMA operations performed following Sound DMA requests from VIDC1a. The registers allow the physical addresses for the START, PNTR (incremental) and END buffer pointers to a block of data in the lowest half megabyte of physical RAM to be accessed.

The registers operate as follows: programming a 19-bit address into the PNTR register sets the physical address from which sequential DMA reads will occur (in multiples of four words), and programming the END pointer sets the last physical address of the buffer. Whenever the PNTR register increments to the END value, the address programmed into the START register is copied into the PNTR register, so sound DMA reads are taken from a new sample buffer.

A Sound Buffer Interrupt (SIRQ) signal is generated when the re-load operation occurs. SIRQ is processed by IOC as an IRQ interrupt source.

MEMC1a also includes a sound channel enable/disable signal. The enable/disable control signal is not synchronised to the sound sampling. Sound requests are normally disabled after the waveforms being synthesised have decayed to zero amplitude.

While sound DMA is disabled VIDC1a will use the last byte loaded into the audio data latch for all the stereo image positions. Output continues at the programmed audio sample rate.

IOC sound system hardware

IOC provides interrupt enable, status and reset register bits for the Sound Start Buffer reload interrupt, generated by MEMC.

The stereo output to the headphones socket, and the mono sound on the TV modulator output always reflect the current output of the DAC channels.

Keyboard and Mouse

The internal keyboard of the A30X0 uses a membrane switch matrix scanned by an 87C51 8 bit micro-controller. The UK keyboard has 103 keys. Key layout is similar to the industry standard PC keyboard. Three status LEDs on the keyboard are controlled by the 87C51 which drives them through an LS366 buffer. Four signals from the 87C51 are expanded to 16 scan lines by two LS145s. As the key matrix is scanned, 16 input lines on the controller detect switch closures. Two key rollover is implemented in the operating system software. Eight special keys are on an independent scan line to avoid key ghosts.

Mouse activity is also detected by the micro-controller. A three-button mouse using quadrature encoding for movement, connects via a 9-way mini DIN socket. The mouse signals are buffered by an LS244 IC. Power for the mouse is routed through a fuse, to protect the power supply from external faults. See *Fuse ratings and power allowances* on page 1-18.

The microcontroller sends data on key operations and mouse movement to the ARM250 (IOC kart) over a serial interface. Data is sent at 32.5Kbaud using an NRZ bit stream. Link points on the PCB can be used to connect a remote keyboard instead of the internal unit.

On an A4000 the keyboard electronics are mounted in a separate keyboard assembly. The keyboard is functionally the same as the A30X0 or A5000 design.

Keyboard serial protocol

The serial protocol used for communication between the 87C51 and ARM250 is essentially half-duplex. During normal operation the keyboard will not send another data byte until the previous byte has been acknowledged. The only exception is caused by Reset or a protocol error.

Key stroke and mouse data can be inhibited by commands from the host computer. Mouse data will only be sent if an enable code (ACK MOUSE) is received by the keyboard controller. This allows the transmission of one set of accumulated mouse coordinate changes, or the next move made by the mouse. While it is not allowed to send mouse changes, the keyboard controller will store mouse movements.

A key stroke will generate key down then key up code sets when key operations are enabled by ACK SCAN from the host. After a keystroke code set (two bytes) the operating system will respond with ACK SCAN, as there is no protocol for re-enabling key data later. Mouse data may be requested by the host with a Request Mouse Position (RQMP) command. A full list of command codes is given in *Table 1.18* on page 1-16.

and the second byte (Ycount) with any of NACK/MACK/SACK/SMAK. A protocol failure causes the keyboard controller to enter the error process (ON error).

When transmission of non-zero mouse data is enabled, the keyboard controller gives key data transmission priority over mouse data except when the mouse counter over/underflows.

Acknowledge codes

There are seven acknowledge codes which may be sent by the ARM250. RAK1 and RAK2 are used during the reset sequence. BACK is the acknowledge to the first byte of a 2-byte keyboard data set. The four remaining types, NACK/MACK/SACK and SMAK, acknowledge the final byte of a data set. NACK disables key scanning and therefore key up/down data transmission as well as setting the mouse mode to send data only on RQMP request. SACK enables key scanning and key data transmission but disables unsolicited mouse data. MACK disables key scanning and key data transmission and enables the transmission of mouse count values if either X or Y counts are non-zero. SMAK enables key scanning and both key and mouse data transmission. It combines the enable function of SACK and MACK.

While key scanning is suspended (after NACK or MACK) any new key depression is ignored and will not result in a key down transmission unless the key remains down after scanning resumes following a SACK or SMAK. Similarly, a key release is ignored while scanning is off.

Commands may be received at any time. Therefore, commands can be interleaved with acknowledge replies from the ARM250.

For example:

1 Keyboard sends KDDA (first byte).

2 Keyboard receives command.

3 Keyboard receives BACK.

4 Keyboard sends KDDA (second byte).

5 Keyboard receives command.

6 Keyboard receives SMACK.

If the HRST command is received the keyboard immediately enters the restart sequence. The LEDS and PRST commands may be acted on immediately. Commands which require a response are held pending until the current data protocol is complete. Repeated commands only require a single response from the keyboard. Commands to the keyboard are listed in *Table 1.18* on page 1-16.

Mouse interface

The mouse interface has three switch sense inputs and two quadrature-encoded movement signals for each of the X axis and Y axis directions. Mouse key operations are debounced and then reported to the ARM250 using the Acorn key up / key down protocol. The mouse keys are allocated unused row and column codes within the main key matrix.

Table 1.16: Mouse row/column codes

Switch	Row code	Column code
1 (left)	7	0
2 (middle)	7	1
3 (right)	7	2

For example, switch 1 release would give 11010111 (&D7) as the complete row code, followed by 11010000 (&D0) for the column code.

Note: Mouse keys are disabled by NACK and MACK acknowledge codes, and are only enabled by SACK and SMAK codes, i.e. they behave in the same way as the keyboard keys.

The mouse is powered from the computer 5V supply and may consume up to 80mA. See *Fuse ratings and power allowances* on page 1-18.

Movement signals

Each axis of movement is independently encoded in two quadrature signals. The two signals are labelled REFerence and DIRection (e.g. X REF and X DIR). *Table 1.17* defines the absolute direction of movement. Circuitry in the keyboard decodes the quadrature signals and maintains a signed 7-bit count for each axis of mouse movement.

Table 1.17: Mouse quadrature signal encoding

Initial state		Next state		
REF	DIR	REF	DIR	
1	1	1	0	Increase count by one for each change of state.
1	0	0	0	
0	0	0	1	
0	1	1	1	
1	1	0	1	Decrease count by one for each change of state.
0	1	0	0	
0	0	1	0	
1	0	1	1	

When count overflow or underflow occurs on either axis, both X and Y axis counts lock and ignore further mouse movement until the current data has been sent to the ARM250.

Overflow occurs when a counter holds its maximum positive count (0111111 binary). Underflow occurs when a counter holds its maximum negative count (1000000 binary).

Table 1.20: Keyboard cap legends, key row/column codes

Key size	Key name	Row code	Col. code	Notes
1	Esc	0	0	1
1	F1	0	1	2
1	F2	0	2	2
1	F3	0	3	2
1	F4	0	4	2
1	F5	0	5	2
1	F6	0	6	2
1	F7	0	7	2
1	F8	0	8	2
1	F9	0	9	2
1	F10	0	A	2
1	F11	0	B	2
1	F12	0	C	2
1	Print	0	D	1,3
1	Scroll	0	E	1,4
1	Break	0	F	1
1	~	1	0	
1	1	1	1	
1	2	1	2	
1	3	1	3	
1	4	1	4	
1	5	1	5	
1	6	1	6	
1	7	1	7	
1	8	1	8	
1	9	1	9	
1	0	1	A	
1	-_	1	B	
1	=+	1	C	
1	1	D		
1	Backspc 1	E	1	
1	Insert	1	F	1
1	Home	2	0	1,3
1	Pgup	2	1	1
1	Numlock 2	2	1,4	
1	/	2	3	1
1	*	2	4	1
1	#	2	5	1
1.5	Tab	2	6	1
1	Q	2	7	
1	W	2	8	
1	E	2	9	
1	R	2	A	
1	T	2	B	
1	Y	2	C	
1	U	2	D	
1	I	2	E	
1	O	2	F	
1	P	3	0	
1	[{3	1		
1	]}	3	2	
1.5	\	3	3	
1	Delete	3	4	1
1	Copy	3	5	1
1	Pgdwn	3	6	1
1	7	3	7	

Key size	Key name	Row code	Col. code	Notes
1	8	3	8	
1	9	3	9	
1	.	3	A	1
1.75	Ctrl	3	B	1,3
1	A	3	C	
1	S	3	D	
1	D	3	E	
1	F	3	F	
1	G	4	0	
1	H	4	1	
1	J	4	2	
1	K	4	3	
1	L	4	4	
1	:;	4	5	
1	'	4	6	
2.25	Return	4	7	1
1	4	4	8	
1	5	4	9	
1	6	4	A	
1	+	4	B	1
2.25	shift	4	C	1,3
1	Z	4	E	
1	X	4	F	
1	C	5	0	
1	V	5	1	
1	B	5	2	
1	N	5	3	
1	M	5	4	
1	,<	5	5	
1	.>	5	6	
1	/	5	7	
2.75	shift	5	8	1,3
1	crsrUp	5	9	1
1	1	5	A	
1	2	5	B	
1	3	5	C	
1.5	Caps	5	D	1,4
1.5	Alt	5	E	1,3
7.0	Space	5	F	
1.5	Alt	6	0	1,3
1.5	Ctrl	6	1	1,3
1	crsrLt	6	2	1
1	crsrDn	6	3	1
1	crsrRt	6	4	1
2.0	0	6	5	
1	.	6	6	
2.0	Enter	6	7	1

Row and column codes are in hexadecimal.

Notes:

1 Key colour - dark grey.

2 Key colour - Acorn green.

3 Key position with N key rollover.

4 Green LED under key cap.

Table 1.21: ARM250 pinout

Pin	Name	Function	Type	I/P	O/P
1	Nre	I/O Read enable	O		C
2	kin	Keyboard in	I	C	
3	kout	Keyboard out	O		C
4	clk72	72MHz clock in	I	C	
5	Ntest	Test pin	I	CP	
6	Nrst	Reset	I/OD	S	CD
7	Npor	Power-on reset	I	S	
8	sysclk	alternative clock	I	CP	
9	VSS1	0V	P		
10	VDD1	5V	P		
11	clk25in	25MHz clock in	I	C	
12	clk25out	25MHz clock out	O		C
13	mid0	Monitor ID0	I	S	
14	mid1	Monitor ID1	I	S	
15	mid2	Monitor ID2	I	S	
16	mid3	Monitor ID3	I	S	
17	clkkb	Keyboard clock	O	C	
18	VSS2	0V	P		
19	eorh	Horiz sync	O		C
20	eorv	Vert/comb sync	O		C
21	Njoy1	Joystick enable 1	O		C
22	Njoy2	Joystick enable 2	O		C
23	Nras	DRAM RAS	O		C
24	Ncas0	DRAM CAS	O		C
25	Ncas1	DRAM CAS	O		C
26	Ncas2	DRAM CAS	O		C
27	Ncas3	DRAM CAS	O		C
28	VSS3	0V	P		
29	VDD2	5V	P		
30	ra0	DRAM address	O		C
31	ra1	DRAM address	O		C
32	ra2	DRAM address	O		C
33	ra3	DRAM address	O		C
34	ra4	DRAM address	O		C
35	ra5	DRAM address	O		C
36	ra6	DRAM address	O		C
37	ra7	DRAM address	O		C
38	ra8	DRAM address	O		C
39	ra9	DRAM address	O		C
40	dbe	Data bus enable	I/O		
41	d0	Data bus	I/O	T	CZ
42	d1	Data bus	I/O	T	CZ
43	d2	Data bus	I/O	T	CZ
44	d3	Data bus	I/O	T	CZ
45	d4	Data bus	I/O	T	CZ
46	d5	Data bus	I/O	T	CZ
47	d6	Data bus	I/O	T	CZ
48	d7	Data bus	I/O	T	CZ
49	VSS4	0V	P		
50	VDD3	5V	P		
51	d8	Data bus	I/O	T	CZ
52	d9	Data bus	I/O	T	CZ
53	d10	Data bus	I/O	T	CZ
54	d11	Data bus	I/O	T	CZ
55	d12	Data bus	I/O	T	CZ
56	d13	Data bus	I/O	T	CZ
57	d14	Data bus	I/O	T	CZ
58	d15	Data bus	I/O	T	CZ
59	d16	Data bus	I/O	T	CZ
60	d17	Data bus	I/O	T	CZ
61	d18	Data bus	I/O	T	CZ
62	d19	Data bus	I/O	T	CZ
63	d20	Data bus	I/O	T	CZ
64	d21	Data bus	I/O	T	CZ
65	d22	Data bus	I/O	T	CZ
66	d23	Data bus	I/O	T	CZ
67	VSS5	0V	P		
68	VDD4	5V	P		
69	d24	Data bus	I/O	T	CZ
70	d25	Data bus	I/O	T	CZ
71	d26	Data bus	I/O	T	CZ
72	d27	Data bus	I/O	T	CZ
73	d28	Data bus	I/O	T	CZ
74	d29	Data bus	I/O	T	CZ
75	d30	Data bus	I/O	T	CZ
76	d31	Data bus	I/O	T	CZ
77	Nromcs	ROM enable	O		C
78	prnw	Read/not Write	O		C
79	la2	Address bus	O		C
80	la3	Address bus	O		C
81	la4	Address bus	O		C
82	la5	Address bus	O		C
83	la6	Address bus	O		C
84	la7	Address bus	O		C
85	la8	Address bus	O		C
86	la9	Address bus	O		C
87	la10	Address bus	O		C
88	la11	Address bus	O		C
89	VSS6	0V	P		
90	VDD5	5V	P		
91	la12	Address bus	O		C
92	la13	Address bus	O		C
93	la14	Address bus	O		C
94	la15	Address bus	O		C
95	la16	Address bus	O		C
96	la17	Address bus	O		C
97	la18	Address bus	O		C
98	la19	Address bus	O		C
99	la20	Address bus	O		C
100	la21	Address bus	O		C
101	pintr	Printer interrupt	I	T	
102	Naen	PC address enable	O		C
103	Nior	PC I/O read	O		C
104	Niow	PC I/O write	O		C
105	Ndack	PC data ack	O		C
106	tc	PC terminal count	O		C
107	VSS7	0V	P		
108	VDD6	5V	P		
109	rsdac	Sound DAC ref	I	A	
110	sndvss	sound 0V	P		
111	sndvdd	sound 5V	P		
112	lch	Sound O/P	O		A
113	Nlch	Sound O/P	O		A
114	rch	Sound O/P	O		A
115	Nrch	Sound O/P	O		A
116	rvdac	Video DAC ref	I		A
117	vidvss	video 0V	P		
118	rout	Video O/P	O		A
119	gout	Video O/P	O		A
120	bout	Video O/P	O		A
121	sink	Frame sync input	I	T	
122	Nsup	Supremacy bit	O		C
123	vidclk	VIDC clock out	O		C
124	clkvid	VIDC clock in	I		C
125	csync	PAL sync	O		C
126	VSS8	0V	P		
127	VDD7	5V	P		
128	Nindex	IOC/IF	I	T	
129	drq	IOC/FH0	I	T	
130	Npirq	IOC/IL5	I	T	
131	Npfiq	IOC/IL0	I	T	
132	Nlintr	IOC/IL4	I	T	
133	Nsintr	IOC/IL2/C4	I/OD	T	CD
134	Nefiq	IOC/FL	I	T	
135	clk2	2MHz clock	O	C	
136	c0	IOC I/O lines	I/OD	T	CD
137	c1	IOC I/O lines	I/OD	T	CD
138	c2	IOC I/O lines	I/OD	T	CD
139	c3	IOC I/O lines	I/OD	T	CD
140	Niorq	IORQ	O		C
141	Niogt	IOGT	I/OD	T	CD
142	Nps1	Podule select	O		C
143	Nil3	IOC/IL3	I	T	
144	Ns2	IOC/S2	O		C
145	ioclk	I/O clock 8MHz	I/O	C	CZ
146	VSS9	0V	P		
147	VDD8	5V	P		
148	bd0	I/O data bus	I/O	T	CZ
149	bd1	I/O data bus	I/O	T	CZ
150	bd2	I/O data bus	I/O	T	CZ
151	bd3	I/O data bus	I/O	T	CZ
152	bd4	I/O data bus	I/O	T	CZ
153	bd5	I/O data bus	I/O	T	CZ
154	bd6	I/O data bus	I/O	T	CZ
155	bd7	I/O data bus	I/O	T	CZ
156	Nwbe	Write Buffer enable	O		C
157	Nrbe	Read buffer enable	O		C
158	Nwbl	Write buffer latch	O		C
159	Nrbl	Read buffer latch	I/OD	T	CD
160	Nwe	I/O Write enable	O		C

Types	P	Power
	I	Input
	O	Output
	I/O	Input/Output
	I/OD	Input/Open-drain output
Inputs	T	TTL
	C	CMOS
	CP	CMOS with pullup
	S	Schmitt
Outputs	C	CMOS
	CZ	CMOS tri-state
	CD	CMOS open-drain

Sockets

Skt	Fitted	Function/Specification
SK1	Yes	This is a 15-way mini D-type socket providing an interface to RGB monitors and Scart TVs. RGB video levels are 0.7V Pk-Pk into 75 Ohm. Sync voltage levels are ≥2.0V (TTL).

Pin	Signal	Pin	Signal
1	RED	9	+5V (fused[†])
2	GREEN	10	0V
3	BLUE	11	ID0
4	ID2	12	ID1/SCART func. switching
5	0V		
6	0V	13	HSYNC
7	0V	14	VSYNC/CSYNC
8	0V	15	ID3

Skt	Fitted	Function/Specification
SK2 not A4000	Yes	Keyboard matrix O/P.

Pin	Signal	Pin	Signal
1	nc	11	P13
2	nc	12	P05
3	nc	13	P12
4	nc	14	P11
5	P17	15	P04
6	P16	16	P03
7	P15	17	P02
8	P14	18	P01
9	P07	19	P10
10	P06	20	P00

Skt	Fitted	Function/Specification
SK3 not A4000	Yes	Keyboard matrix I/P.

Pin	Signal	Pin	Signal
1	Caps LED	11	Y8
2	Y0	12	Y9
3	Y1	13	Y10
4	Y2	14	Y11
5	Y3	15	Y12
6	Y4	16	5V
7	Y5	17	Scroll LED
8	NKEY	18	Num LED
9	Y6	19	InUse LED
10	Y7	20	Power LED

Skt	Fitted	Function/Specification
SK4	Yes	Stereo headphone output. 3-way 3.5mm stereo jack socket providing output to "Walkman-type" 32 ohm stereo headphones.

Skt	Fitted	Function/Specification
SK5	Yes	Part of internal expansion socket (see also SK7, SK8 and SK9).

Pin	Signal	Pin	Signal
1	5V[†]	9	BD2
2	PWE	10	BD3
3	PS1	11	BD4
4	CLK2	12	BD5
5	LA2	13	BD6
6	LA3	14	BD7
7	BD0	15	RST
8	BD1	16	0V
		17	5V

Skt	Fitted	Function/Specification
SK6 not A4000	Yes	9-way mini-DIN connection for quadrature mouse.

Skt	Fitted	Function/Specification
SK7	Yes	Part of internal expansion socket.

Pin	Signal
1	C0
2	C1
3	BL
4	IORQ
5	IOGT

Skt	Fitted	Function/Specification
SK8	Yes	Part of internal expansion socket.

Pin	Signal
1	0V
2	REF8M
3	PFIQ
4	MS1
5	5V[†]

Skt	Fitted	Function/Specification
SK9	Yes	Part of internal expansion socket.

Pin	Signal	Pin	Signal
1	0V	9	0V
2	5V[†]	10	LA8
3	PRE	11	LA9
4	PR/nW	12	LA10
5	LA4	13	LA11
6	LA5	14	LA12
7	LA6	15	LA13
8	LA7	16	PFIQ
		17	0V

Skt	Fitted	Function/Specification
SK10	Yes	Parallel printer port. 25-way D-type socket providing a parallel printer interface.

Pin	Signal	Pin	Signal	Pin	Signal
1	STB	8	PD6	15	ERROR
2	PD0	9	PD7	16	INIT
3	PD1	10	ACK	17	SLCTIN
4	PD2	11	BSY	18-25	0V
5	PD3	12	PE		
6	PD4	13	SLCT		
7	PD5	14	AUTOFD		

Skt	Fitted	Function/Specification
SK11	Yes	Network card high address

Pin	Signal
1	LA21
2	LA18
3	0V
4	LA17
5	LA16

Skt	Fitted	Function/Specification
SK12	Yes	Network card low address

Pin	Signal
1	LA15
2	LA14
3	0V
4	LA5
5	LA4

Skt	Fitted	Function/Specification
SK13	Yes	Network card data

Pin	Signal	Pin	Signal
1	EFIQ	10	BD3
2	WBE	11	BD4
3	S2	12	BD5
4	CLK2	13	BD6
5	LA2	14	BD7
6	LA3	15	RST
7	BD0	16	0V
8	BD1	17	5V
9	BD2		

Skt	Fitted	Function/Specification
SK15	Yes	Network card control

Pin	Signal	Pin	Signal
1	PWE	7	0V
2	BL	8	MS0
3	IORQ	9	PRE
4	IOGT	10	PRNW
5	0V	11	PIRQ
6	REF8M	12	5V

Skt	Fitted	Function/Specification
SK16	Yes	Network, preferred usage

Pin		Signal	
	Econet	10b2	10bT
1	Clock+	CD-	nc
2	Clock-	CD+	nc
3	GND	GND	GND
4	DATA-	TX-	nc
5	DATA+	TX+	nc
6	nc	nc	RXI-
7	nc	nc	RXI+
8	nc	RX-	nc
9	nc	RX+	nc
10	nc	VCC	VCC
11	nc	nc	TXOD-
12	nc	nc	TXOD+
13	nc	nc	TXO+
14	nc	IDC	IDC
15	nc	nc	TXO-

Part 2 – Parts lists

A4000 main PCB assy parts list, issue 2

ITEM	PART No.	DESCRIPTION	QTY	Remarks
1	0294,600	BARE PCB	1	
2	0194,600/A	PCB ASSEMBLY DWG	1	per batch
3	0194,600/C	PCB CIRCUIT DIAGRAM	1	per batch
7	0294,664	PCB REAR PANEL	1	
10	0800,070	CONR 2W SHUNT 0.1	4	LK6(x2), 31, 32
12	0885,310	WSHR INS MTG XTAL HC49	1	Use with X5
13	0800,996	CONRD 440UNC SCWLK 5L	4	Use with SK1 18
14	0800,997	WSHR 440UNC INT SPRF SNP	8	Use with SK1, 10, 18, PL8
16	0870,420	WIRE 22SWG CPR TIN	A/R	Use with X2,7
19	0902,004	LABEL SERIAL PCB 40x10mm	1	
21	0800,197	SKT STRIP 3/0.1 TURN	1	IC12
22	0800,102	SKT IC 42/0.6 SUPA	1	IC17
23	0800,102	SKT IC 42/0.6 SUPA	1	IC18
24	0800,199	SKT STRIP 14/0.1 LP	2	IC33
25	0800,199	SKT STRIP 14/0.1 LP	2	IC34
26	0800,199	SKT STRIP 14/0.1 LP	2	IC35
27	0800,199	SKT STRIP 14/0.1 LP	2	IC36
BT2	0817,014	BAT NI 1V2 280MAH VT PCB	1	
C1	0635,100	CPCTR 10U ALEC 16V RAD	1	
C2	0635,470	CPCTR 47U ALEC 16V RAD	1	
C3	0692,473	CPCTR 47N CML 20% 805	1	
C10	0693,336	CPCTR 33N DCPLR SMD 805	1	
C12	0693,336	CPCTR 33N DCPLR SMD 805	1	
C13	0693,336	CPCTR 33N DCPLR SMD 805	1	
C14	0635,470	CPCTR 47U ALEC 16V RAD	1	
C15	0650,472	CPCTR MPSTR 4N7 63V 10%	1	
C16	0635,470	CPCTR 47U ALEC 16V RAD	1	
C41	0691,102	CPCTR 1N CML 10% 805	1	
C42	0691,102	CPCTR 1N CML 10% 805	1	
C43	0693,336	CPCTR 33N DCPLR SMD 805	1	
C49	0635,230	CPCTR 220U ALEC 16V RAD	1	
C51	0691,102	CPCTR 1N CML 10% 805	1	
C52	0691,102	CPCTR 1N CML 10% 805	1	
C53	0691,102	CPCTR 1N CML 10% 805	1	
C54	0690,820	CPCTR 82P CML 2% 805	1	
C56	0690,820	CPCTR 82P CML 2% 805	1	
C58	0690,820	CPCTR 82P CML 2% 805	1	
C60	0642,103	CPCTR 100U ALEC 25V RAD	1	
C61	0691,102	CPCTR 1N CML 10% 805	1	
C62	0647,002	CPCTR 47U ALEC 16V SMD	1	
C63	0693,336	CPCTR 33N DCPLR SMD 805	1	
C64	0693,336	CPCTR 33N DCPLR SMD 805	1	
C65	0690,120	CPCTR 12P CML 2% 805	1	
C66	0693,336	CPCTR 33N DCPLR SMD 805	1	
C68	0642,103	CPCTR 100U ALEC 25V RAD	1	
C69	0692,473	CPCTR 47N CML 20% 805	1	
C70	0693,336	CPCTR 33N DCPLR SMD 805	1	
C71	0693,336	CPCTR 33N DCPLR SMD 805	1	
C72	0693,336	CPCTR 33N DCPLR SMD 805	1	
C73	0635,470	CPCTR 47U ALEC 16V RAD	1	
C74	0635,047	CPCTR 4U7 ALEC 16V RAD	1	
C78	0647,002	CPCTR 47U ALEC 16V SMD	1	
C79	0693,336	CPCTR 33N DCPLR SMD 805	1	
C80	0647,002	CPCTR 47U ALEC 16V SMD	1	
C81	0693,336	CPCTR 33N DCPLR SMD 805	1	
C82	0635,100	CPCTR 10U ALEC 16V RAD	1	
C83	0610,010	CPCTR 10U TANT 10V 20% 5P	1	

ITEM	PART No.	DESCRIPTION	QTY	Remarks
C84	0635,100	CPCTR 10U ALEC 16V RAD	1	
C85	0693,336	CPCTR 33N DCPLR SMD 805	1	
C87	0693,336	CPCTR 33N DCPLR SMD 805	1	
C88	0647,001	CPCTR 10U ALEC 16V SMD	1	
C89	0693,336	CPCTR 33N DCPLR SMD 805	1	
C90	0647,001	CPCTR 10U ALEC 16V SMD	1	
C91	0693,336	CPCTR 33N DCPLR SMD 805	1	
C92	0693,336	CPCTR 33N DCPLR SMD 805	1	
C93	0647,001	CPCTR 10U ALEC 16V SMD	1	
C94	0693,336	CPCTR 33N DCPLR SMD 805	1	
C95	0693,336	CPCTR 33N DCPLR SMD 805	1	
C98	0690,120	CPCTR 12P CML 2% 805	1	
C99	0690,120	CPCTR 12P CML 2% 805	1	
C100	0693,336	CPCTR 33N DCPLR SMD 805	1	
C101	0693,336	CPCTR 33N DCPLR SMD 805	1	
C102	0693,336	CPCTR 33N DCPLR SMD 805	1	
C103	0693,336	CPCTR 33N DCPLR SMD 805	1	
C105	0681,101	CPCTR 10U TANT SMD 16V	1	
C106	0681,100	CPCTR 47U TANT SMD	1	
C107	0693,336	CPCTR 33N DCPLR SMD 805	1	
C108	0690,101	CPCTR 100P CML 2% 805	1	
C109	0693,336	CPCTR 33N DCPLR SMD 805	1	
C110	0635,230	CPCTR 220U ALEC 16V RAD	1	
C111	0690,101	CPCTR 100P CML 2% 805	1	
C112	0690,101	CPCTR 100P CML 2% 805	1	
C113	0690,101	CPCTR 100P CML 2% 805	1	
C114	0690,101	CPCTR 100P CML 2% 805	1	
C115	0690,101	CPCTR 100P CML 2% 805	1	
C116	0693,336	CPCTR 33N DCPLR SMD 805	1	
C117	0693,336	CPCTR 33N DCPLR SMD 805	1	
C118	0635,230	CPCTR 220U ALEC 16V RAD	1	
C119	0693,336	CPCTR 33N DCPLR SMD 805	1	
C120	0610,010	CPCTR 10U TANT 10V 20% 5P	1	
C121	0693,336	CPCTR 33N DCPLR SMD 805	1	
C122	0690,101	CPCTR 100P CML 2% 805	1	
C123	0690,101	CPCTR 100P CML 2% 805	1	
C124	0693,336	CPCTR 33N DCPLR SMD 805	1	
C125	0690,101	CPCTR 100P CML 2% 805	1	
C126	0690,101	CPCTR 100P CML 2% 805	1	
C127	0691,102	CPCTR 1N CML 10% 805	1	
C128	0690,220	CPCTR 22P CML 2% 805	1	
C129	0690,220	CPCTR 22P CML 2% 805	1	
C130	0693,336	CPCTR 33N DCPLR SMD 805	1	
C131	0610,010	CPCTR 10U TANT 10V 20% 5P	1	
C132	0690,101	CPCTR 100P CML 2% 805	1	
C133	0691,102	CPCTR 1N CML 10% 805	1	
C134	0690,101	CPCTR 100P CML 2% 805	1	
C135	0691,102	CPCTR 1N CML 10% 805	1	
C136	0690,101	CPCTR 100P CML 2% 805	1	
C137	0693,336	CPCTR 33N DCPLR SMD 805	1	
C138	0693,336	CPCTR 33N DCPLR SMD 805	1	
C139	0610,010	CPCTR 10U TANT 10V 20% 5P	1	
C140	0693,336	CPCTR 33N DCPLR SMD 805	1	
C141	0691,102	CPCTR 1N CML 10% 805	1	
C142	0691,102	CPCTR 1N CML 10% 805	1	
C143	0691,102	CPCTR 1N CML 10% 805	1	
C144	0691,102	CPCTR 1N CML 10% 805	1	
C145	0691,102	CPCTR 1N CML 10% 805	1	
C146	0693,336	CPCTR 33N DCPLR SMD 805	1	

ITEM	PART No.	DESCRIPTION	QTY	Remarks
R39	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R40	0523.201	RES 200R SMD 5% 0W10 0805	1	
R41	0523.680	RES 68R SMD 5% 0W10 0805	1	
R43	0523.430	RES 43R SMD 5% 0W10 0805	1	
R45	0523.430	RES 43R SMD 5% 0W10 0805	1	
R47	0523.430	RES 43R SMD 5% 0W10 0805	1	
R48	0523.104	RES 100K SMD 5% 0W10 0805	1	
R51	0523.339	RES 3R3 SMD 5% 0W10 0805	1	
R53	0523.680	RES 68R SMD 5% 0W10 0805	1	
R54	0523.680	RES 68R SMD 5% 0W10 0805	1	
R55	0523.201	RES 200R SMD 5% 0W10 0805	1	
R56	0523.680	RES 68R SMD 5% 0W10 0805	1	
R57	0522.243	RES 301R SMD 1% 0W25 1206	1	
R58	0522.243	RES 301R SMD 1% 0W25 1206	1	
R59	0522.243	RES 301R SMD 1% 0W25 1206	1	
R60	0523.181	RES 180R SMD 5% 0W10 0805	1	
R61	0523.470	RES 47R SMD 5% 0W10 0805	1	
R62	0523.103	RES 10K SMD 5% 0W10 0805	1	
R63	0523.221	RES 220R SMD 5% 0W10 0805	1	
R65	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R66	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R68	0523.339	RES 3R3 SMD 5% 0W10 0805	1	
R69	0523.100	RES 10R SMD 5% 0W10 0805	1	
R70	0523.103	RES 10K SMD 5% 0W10 0805	1	
R73	0523.181	RES 180R SMD 5% 0W10 0805	1	
R74	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R75	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R81	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R82	0523.331	RES 330R SMD 5% 0W10 0805	1	
R83	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R84	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R85	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R86	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R87	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R88	0523.102	RES 1K0 SMD 5% 0W10 0805	1	
R89	0523.103	RES 10K SMD 5% 0W10 0805	1	
R90	0523.122	RES 1K2 SMD 5% 0W10 0805	1	
R91	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R92	0523.122	RES 1K2 SMD 5% 0W10 0805	1	
R94	0523.104	RES 100K SMD 5% 0W10 0805	1	
R95	0523.101	RES 100R SMD 5% 0W10 0805	1	
R96	0523.223	RES 22K SMD 5% 0W10 0805	1	
R97	0523.220	RES 22R SMD 5% 0W10 0805	1	
R98	0523.104	RES 100K SMD 5% 0W10 0805	1	
R99	0523.104	RES 100K SMD 5% 0W10 0805	1	
R100	0523.104	RES 100K SMD 5% 0W10 0805	1	
R101	0523.104	RES 100K SMD 5% 0W10 0805	1	
R102	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R104	0523.105	RES 1M0 SMD 5% 0W10 0805	1	
R106	0523.104	RES 100K SMD 5% 0W10 0805	1	
R107	0523.104	RES 100K SMD 5% 0W10 0805	1	
R108	0523.103	RES 10K SMD 5% 0W10 0805	1	
R109	0523.104	RES 100K SMD 5% 0W10 0805	1	
R110	0523.680	RES 68R SMD 5% 0W10 0805	1	
R113	0523.220	RES 22R SMD 5% 0W10 0805	1	
R114	0523.331	RES 330R SMD 5% 0W10 0805	1	
R115	0523.680	RES 68R SMD 5% 0W10 0805	1	
R116	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R117	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R118	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R119	0523.103	RES 10K SMD 5% 0W10 0805	1	
R120	0523.330	RES 33R SMD 5% 0W10 0805	1	
R121	0523.472	RES 4K7 SMD 5% 0W10 0805	1	

ITEM	PART No.	DESCRIPTION	QTY	Remarks
R122	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R123	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R124	0523.680	RES 68R SMD 5% 0W10 0805	1	
R126	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R127	0522.380	RES 6K81 SMD 1% 0W25 1206	1	
R128	0522.425	RES 18K2 SMD 1% 0W25 1206	1	
R129	0523.122	RES 1K2 SMD 5% 0W10 0805	1	
R131	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R132	0523.680	RES 68R SMD 5% 0W10 0805	1	
R133	0523.680	RES 68R SMD 5% 0W10 0805	1	
R134	0523.680	RES 68R SMD 5% 0W10 0805	1	
R137	0523.680	RES 68R SMD 5% 0W10 0805	1	
R138	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R139	0523.102	RES 1K0 SMD 5% 0W10 0805	1	
R140	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R141	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R142	0523.102	RES 1K0 SMD 5% 0W10 0805	1	
R143	0523.102	RES 1K0 SMD 5% 0W10 0805	1	
R144	0523.102	RES 1K0 SMD 5% 0W10 0805	1	
R145	0523.102	RES 1K0 SMD 5% 0W10 0805	1	
R207	0523.103	RES 10K SMD 5% 0W10 0805	1	
R212	0523.332	RES 3K3 SMD 5% 0W10 0805	1	
R213	0523.222	RES 2K2 SMD 5% 0W10 0805	1	
R215	0523.000	RES ZEROR SMD 0W10 0805	1	
R501	0521.472	RES 4K7 SMD 5% 0W25 1206	1	
R502	0521.472	RES 4K7 SMD 5% 0W25 1206	1	
R503	0523.680	RES 68R SMD 5% 0W10 0805	1	
R504	0523.680	RES 68R SMD 5% 0W10 0805	1	
R505	0523.680	RES 68R SMD 5% 0W10 0805	1	
R506	0523.680	RES 68R SMD 5% 0W10 0805	1	
R507	0523.680	RES 68R SMD 5% 0W10 0805	1	
R508	0523.680	RES 68R SMD 5% 0W10 0805	1	
R509	0523.680	RES 68R SMD 5% 0W10 0805	1	
R510	0523.680	RES 68R SMD 5% 0W10 0805	1	
R600	0523.220	RES 22R SMD 5% 0W10 0805	1	
R601	0523.220	RES 22R SMD 5% 0W10 0805	1	
R602	0523.220	RES 22R SMD 5% 0W10 0805	1	
R603	0523.220	RES 22R SMD 5% 0W10 0805	1	
R604	0523.220	RES 22R SMD 5% 0W10 0805	1	
R605	0523.220	RES 22R SMD 5% 0W10 0805	1	
R609	0523.330	RES 33R SMD 5% 0W10 0805	1	
R610	0523.330	RES 33R SMD 5% 0W10 0805	1	
R611	0523.330	RES 33R SMD 5% 0W10 0805	1	
R612	0523.330	RES 33R SMD 5% 0W10 0805	1	
R613	0523.330	RES 33R SMD 5% 0W10 0805	1	
R615	0523.330	RES 33R SMD 5% 0W10 0805	1	
R616	0523.330	RES 33R SMD 5% 0W10 0805	1	
R617	0523.330	RES 33R SMD 5% 0W10 0805	1	
R618	0523.330	RES 33R SMD 5% 0W10 0805	1	
R619	0523.330	RES 33R SMD 5% 0W10 0805	1	
R620	0523.330	RES 33R SMD 5% 0W10 0805	1	
R621	0523.330	RES 33R SMD 5% 0W10 0805	1	
R622	0523.330	RES 33R SMD 5% 0W10 0805	1	
R623	0523.330	RES 33R SMD 5% 0W10 0805	1	
R624	0523.330	RES 33R SMD 5% 0W10 0805	1	
R625	0523.330	RES 33R SMD 5% 0W10 0805	1	
R626	0523.330	RES 33R SMD 5% 0W10 0805	1	
R627	0523.330	RES 33R SMD 5% 0W10 0805	1	
R628	0523.330	RES 33R SMD 5% 0W10 0805	1	
R629	0523.330	RES 33R SMD 5% 0W10 0805	1	
R630	0523.330	RES 33R SMD 5% 0W10 0805	1	
R631	0523.330	RES 33R SMD 5% 0W10 0805	1	
R632	0523.330	RES 33R SMD 5% 0W10 0805	1	

A3010 2M final assembly parts list, issue 2

ITEM	PART No.	DESCRIPTION	QTY	Remarks
	0094,000/A	Final Assembly Drg.		1 Per Batch
	0194,015	Mains Cable Assy	1	
	0192,082	Speaker Cable Assembly	1	
	0194,078	Earth Cable Assy	1	
	0194,006	C (2M) Main PCB Assy	1	
	0194,011	UK National K/B Variant	1	
	0494,042	Adelaide Keyboard Label	1	
	0494,043	Adelaide Base Label	1	
	0494,044	Adelaide Mains Label	1	
	0494,046	Adelaide PSU Label	1	
	0294,080	Battery Insulation Pad	1	
	0294,060	Lower Metal	1	
	0294,061	Upper Metal	1	
	0294,062	User Access Lid	1	
	0294,064	Plastic Case Upper	1	
	0294,065	Plastic Case Lower	1	
	0294,066	Rear Aperture Cover	1	
	0294,069	RAM Upgrade Access Lid	1	
	0294,070	Rear EMC Blanking Gasket	1	
	0294,073	PCB Insulation Sheet	1	
	0194,075	Disc Drive Cable Assy	1	
	0194,076	Disc Drive Pwr Cable Assy	1	
	0800,996	Conrd 4-40UNC ScwLk 5L	2	
	0800,997	Wshr 4-40UNC Int Sprf Snp	10	
	0805,705	Cap 5mmD Plstc Grey	1	
	0880,024	Grmt Cbl Rnd 7,4Dx4T Blk	1	
	0882,120	Scw M3x10 Skt Button Hd	2	
	0882,121	Scw M3x6 Pan HD Posi	4	
	0882,129	Scw M3x6 Skt Cap Hd	1	
	0882,717	Scw 3x6mm Pan Posi PLST45	1	
	0882,902	Nut M3 Stl Full Z/Pas	2	
	0890,013	Foot S/A Rubr 8Dx2.5Hmm	2	
	0940,008	Adh Hot Melt Plst UL94V-0	A/R	
	0882,972	Wshr M3 Sprl It Stl	2	
	0882,718	Scw 3x8mm Pan Posi PLST45	4	
	0912,022	Floppy Drive 1/2MB 3.5	1	

A3010 1M main PCB assembly parts list, issue 3

ITEM	PART No.	DESCRIPTION	QTY	Remarks
1	0294,000	BARE PCB		1
2	0194,000/A	PCB ASSEMBLY DWG		1 PER BATCH
3	0194,000/C	PCB CIRCUIT DIAGRAM	1	PER BATCH
6	0294,074	PSU INSULATION SHEET	1	
7	0494,055	PCB HEATSINK LABEL	1	
9	0800,070	CONR 2W SHUNT 0.1	5	LK6(x2)142022
10	0800,070	CONR 2W SHUNT 0.1	1	LK2 (See Note on Sht 13)
11	0870,420	WIRE 22SWG CPR TIN	A/R	
12	0885,310	WSHR INS MTG XTAL HC49	1	Use with X5
13	0884,038	RIVET PLST SNAP 6.35 THK	2	Use with Items 1 and 6
14	0884,042	RIVET POP DOME 3,2D & THK	2	Use with Items 1 and HS1
16	0882,128	SCW M3x8 PAN HD POSI	1	Use with Items 6 and Q2
17	0882,902	NUT M3 STL FULL Z/PAS	1	Use with Items 6 and Q2
18	0882,972	WSHR M3 SPRF IT STL	1	Use with Items 6 and Q2
19	0902,004	LABEL SERIAL PCB 40x10mm	1	
20	0945,000	HEAT SINK COMPOUND SI	A/R	Use with HS1 and Q2
21	0815,910	FUSE CLIP 5MMD SE PCB	2	FS1
22	0800,103	SKT IC 40W ZIP SUPA	1	IC6
23	0800,103	SKT IC 40W ZIP SUPA	1	IC11
24	0800,197	SKT STRIP 3/0.1 TURN	1	IC12
25	0800,102	SKT IC 42/0.6 SUPA	1	IC17
26	0800,102	SKT IC 42/0.6 SUPA	1	IC18
BT2	0817,014	BAT NI 1V2 280MAH VT PCB	1	
C1	0635,100	CPCTR 10U ALEC 16V RAD	1	
C2	0635,230	CPCTR 220U ALEC 16V RAD	1	
C3	0692,473	CPCTR 47N CML 20% 805	1	
C4				NOT FITTED
C5				NOT FITTED
C6	0635,230	CPCTR 220U ALEC 16V RAD	1	
C7				NOT FITTED
C8	0693,107	CPCTR 100N DCPLR SMD 805	1	
C9	0635,100	CPCTR 10U ALEC 16V RAD	1	
C10	0635,106	CPCTR 1000U ALEC 35V RAD	1	
C11	0692,104	CPCTR 100N CML 20% 805	1	
C12	0650,333	CPCTR MPSTR 33N 50V 20%	1	
C13	0691,222	CPCTR 2N2 CML 10% 805	1	
C14	0635,470	CPCTR 47U ALEC 16V RAD	1	
C15	0650,227	CPCTR MPSTR 22N 63V 5%	1	
C16	0635,470	CPCTR 47U ALEC 16V RAD	1	
C17	0692,104	CPCTR 100N CML 20% 805	1	
C18	0635,476	CPCTR 470U ALEC 35V RAD	1	
C19	0635,022	CPCTR 2U2 ALEC 50V RAD	1	
C20	0635,230	CPCTR 220U ALEC 16V RAD	1	
C21	0635,230	CPCTR 220U ALEC 16V RAD	1	
C22	0635,230	CPCTR 220U ALEC 16V RAD	1	
C23	0693,336	CPCTR 33N DCPLR SMD 805	1	
C24	0693,336	CPCTR 33N DCPLR SMD 805	1	
C25	0699,003	CPCTR TRMR 5/65P 250V	1	
C26	0690,330	CPCTR 33P CML 2% 805	1	
C27	0642,103	CPCTR 100U ALEC 25V RAD	1	
C28	0635,470	CPCTR 47U ALEC 16V RAD	1	
C29	0693,336	CPCTR 33N DCPLR SMD 805	1	
C30	0642,103	CPCTR 100U ALEC 25V RAD	1	
C31	0693,336	CPCTR 33N DCPLR SMD 805	1	

ITEM	PART No.	DESCRIPTION	QTY	Remarks
C159	0621.470	CPCTR 47U ALEC 10V AX	1	
C160	0693.107	CPCTR 100N DCPLR SMD 805	1	
C161	0635.230	CPCTR 220U ALEC 16V RAD	1	
C162	0693.336	CPCTR 33N DCPLR SMD 805	1	
C163	0693.107	CPCTR 100N DCPLR SMD 805	1	
C164	0621.470	CPCTR 47U ALEC 10V AX	1	
C165	0621.470	CPCTR 47U ALEC 10V AX	1	
C166	0693.107	CPCTR 100N DCPLR SMD 805	1	
C167	0693.336	CPCTR 33N DCPLR SMD 805	1	
C220	0635.100	CPCTR 10U ALEC 16V RAD	1	
C221	0693.336	CPCTR 33N DCPLR SMD 805	1	
C222	0693.336	CPCTR 33N DCPLR SMD 805	1	
C223	0693.336	CPCTR 33N DCPLR SMD 805	1	
D1	0794.001	DIODE SI 1N4001 100V 1A	1	
D2	0794.001	DIODE SI 1N4001 100V 1A	1	
D3	0794.001	DIODE SI 1N4001 100V 1A	1	
D4	0794.001	DIODE SI 1N4001 100V 1A	1	
D5	0794.001	DIODE SI 1N4001 100V 1A	1	
D6	0794.001	DIODE SI 1N4001 100V 1A	1	
D7	0794.001	DIODE SI 1N4001 100V 1A	1	
D8	0794.001	DIODE SI 1N4001 100V 1A	1	
D9	0790.050	DIODE SI SB 3A 40V DO201	1	
D10	0796.000	DIODE SI BAS16 SOT23	1	
D11	0796.001	DIODE SI BAV99 SOT23	1	
D12	0796.000	DIODE SI BAS16 SOT23	1	
D13	0796.000	DIODE SI BAS16 SOT23	1	
D14	0796.001	DIODE SI BAV99 SOT23	1	
D15	0796.000	DIODE SI BAS16 SOT23	1	
D16	0796.000	DIODE SI BAS16 SOT23	1	
D17	0796.001	DIODE SI BAV99 SOT23	1	
D18	0796.000	DIODE SI BAS16 SOT23	1	
D19	0796.000	DIODE SI BAS16 SOT23	1	
D20	0796.000	DIODE SI BAS16 SOT23	1	
FS1	0815.252	FUSE 250MA T 20X5MMD HBC	1	
FS2	0815.503	FUSE 250MA F 63VAC SMD	1	
FS3	0815.503	FUSE 250MA F 63VAC SMD	1	
FS4	0815.503	FUSE 250MA F 63VAC SMD	1	
FS5	0815.503	FUSE 250MA F 63VAC SMD	1	
HS1	0294.071	HERON HEATSINK	1	
IC1	0701.146	IC 1145 RGB ENC 24P SOIC	1	
IC2	0294.031	IC KBD CNTRLR (0708.053)	1	
IC3	0764.145	IC 74LS145 TTL 16P SOIC	1	
IC4	0764.145	IC 74LS145 TTL 16P SOIC	1	
IC5	0708.584	IC 8583 RTC RAM 8P SOIC	1	
IC6				NOT FITTED
IC7	0764.366	IC 74LS366 TTL 16P SOIC	1	
IC8	0762.014	IC 74HCT14 CMOS 14P SOIC	1	
IC9	0764.241	IC 74LS241 TTL 20P SOIC	1	
IC10	0771.386	IC LM386 AUDIO AMP 8PSOIC	1	
IC11				NOT FITTED
IC12	0702.401	IC DS2400 ID 3W SIL 0.1	1	
IC13				NOT FITTED
IC14	0762.574	IC 74HCT574 CMOS 20P SOIC	1	
IC15	0762.574	IC 74HCT574 CMOS 20P SOIC	1	
IC16	0735.489	IC 1489A RS232 RX 14SOIC	1	
IC17	0296.061	RISC OS GREEN (X16) ROM 1	1	
IC18	0296.062	RISC OS GREEN (X16) ROM 2	1	
IC19	0735.488	IC 1488 RS232 DRVR 14SOIC	1	
IC20	0761.138	IC 74HC138 CMOS 16P SOIC	1	
IC21	0704.128	IC DRAM 256KX16 80NS SOJ	1	
IC22	0704.128	IC DRAM 256KX16 80NS SOJ	1	
IC23	0735.489	IC 1489A RS232 RX 14SOIC	1	
IC24	0701.711	IC 82C711 UCNTRLR 100OFP	1	

ITEM	PART No.	DESCRIPTION	QTY	Remarks
IC25	0761.139	IC 74HC139 CMOS 16P SOIC	1	
IC26	0762.014	IC 74HCT14 CMOS 14P SOIC	1	
IM1	0194.002	HERON CPU MODULE	1	
IM2	0194.007	AUDIO HYBRID ADELIADE 17P	1	
L1	0194.012	TRNSFMR 25VA 240VAC 2R FX	1	
L2	0860.503	IND CHK 1A 80R@100MHZ SMD	1	
L3	0860.503	IND CHK 1A 80R@100MHZ SMD	1	
L4	0860.210	IND 150UH 20% 5A TOROID P	1	
L5	0860.020	CHOKE RF 100UH 10% AX	1	
L6	0860.503	IND CHK 1A 80R@100MHZ SMD	1	
L7	0825.055	BANDPASS FLTR 4.43MHZ 7P	1	
L8	0860.005	CHOKE RF 33UH AX Q45	1	
L9	0825.056	LOW PASS FLTR 180NS 12P	1	
L10	0860.012	CHOKE RF 2U2H AX Q30	1	
L11	0860.503	IND CHK 1A 80R@100MHZ SMD	1	
L12	0860.005	CHOKE RF 33UH AX Q45	1	
L13	0860.503	IND CHK 1A 80R@100MHZ SMD	1	
L14	0860.503	IND CHK 1A 80R@100MHZ SMD	1	
L15	0860.503	IND CHK 1A 80R@100MHZ SMD	1	
L16	0860.503	IND CHK 1A 80R@100MHZ SMD	1	
L17	0860.503	IND CHK 1A 80R@100MHZ SMD	1	
LK1	0870.420	WIRE 22SWG CPR TIN	1	(See Note on Sht 13)
LK2	0800.050	CONR 2W WAFR 0.1 ST PCB	1	
LK3	0800.450	CONR 6W WAFR 0.1 ST PCB	1	
LK4				NOT FITTED
LK5				NOT FITTED
LK6	0800.876	CONR 8W WAFR 0.1 2ROW ST	1	
LK7				NOT FITTED
LK8				NOT FITTED
LK9				NOT FITTED
LK10				NOT FITTED
LK11				NOT FITTED
LK12				NOT FITTED
LK13				NOT FITTED
LK14	0800.051	CONR 3W WAFR 0.1 ST PCB	1	
LK15				NOT FITTED
LK16	0800.450	CONR 6W WAFR 0.1 ST PCB	1	
LK18	0800.050	CONR 2W WAFR 0.1 ST PCB	1	
LK19	0800.458	CONR 2W WAFR 0.1 ST LK	1	
LK20	0800.051	CONR 3W WAFR 0.1 ST PCB	1	
LK21	0800.050	CONR 2W WAFR 0.1 ST PCB	1	
LK22	0800.051	CONR 3W WAFR 0.1 ST PCB	1	
LK30				NOT FITTED
PL1	0800.235	CONR 2W WAFR ST 0.312 LK	1	
PL2	0800.203	FSTN TAB 6,3MMX0,8 ST PCB	1	
PL3	0800.203	FSTN TAB 6,3MMX0,8 ST PCB	1	
PL4	0800.203	FSTN TAB 6,3MMX0,8 ST PCB	1	
PL5	0800.932	CONR 4W PLG PCB ST DISC P	1	
PL6	0898.003	CONRD 9WPLG RA PCB+RFI+L	1	
PL7	0898.003	CONRD 9WPLG RA PCB+RFI+L	1	
PL8	0898.003	CONRD 9WPLG RA PCB+RFI+L	1	
PL9	0898.002	CONR 34W BOX IDC LP ST	1	
Q1	0778.212	VOLT REG 78L12 12V 8PSOIC	1	
Q2	0778.106	VOLT REG L4960 ADJ 2A5	1	
Q3	0784.849	TRANS BC849C NPN SOT23	1	
Q4	0784.906	TRANS SM3906 PNP SOT23	1	
Q5	0784.906	TRANS SM3906 PNP SOT23	1	
Q6	0784.906	TRANS SM3906 PNP SOT23	1	
Q7	0784.906	TRANS SM3906 PNP SOT23	1	
Q8	0784.906	TRANS SM3906 PNP SOT23	1	
Q9	0784.906	TRANS SM3906 PNP SOT23	1	
Q10	0784.906	TRANS SM3906 PNP SOT23	1	

A3010 2M main PCB assembly parts list, issue 3

ITEM	PART No.	DESCRIPTION	QTY	Remarks
R131	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R132	0523.680	RES 68R SMD 5% 0W10 0805	1	
R133	0523.680	RES 68R SMD 5% 0W10 0805	1	
R134	0523.680	RES 68R SMD 5% 0W10 0805	1	
R135	0523.331	RES 330R SMD 5% 0W10 0805	1	
R136	0523.103	RES 10K SMD 5% 0W10 0805	1	
R137	0523.680	RES 68R SMD 5% 0W10 0805	1	
R138	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R139	0523.102	RES 1K0 SMD 5% 0W10 0805	1	
R140	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R141	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R142	0523.102	RES 1K0 SMD 5% 0W10 0805	1	
R143	0523.102	RES 1K0 SMD 5% 0W10 0805	1	
R144	0523.102	RES 1K0 SMD 5% 0W10 0805	1	
R145	0523.102	RES 1K0 SMD 5% 0W10 0805	1	
R210	0523.182	RES 1K8 SMD 5% 0W10 0805	1	
R211	0523.332	RES 3K3 SMD 5% 0W10 0805	1	
R212	0523.332	RES 3K3 SMD 5% 0W10 0805	1	
R213	0523.222	RES 2K2 SMD 5% 0W10 0805	1	
R214	0523.103	RES 10K SMD 5% 0W10 0805	1	
R215	0523.000	RES ZEROR SMD 0W10 0805	1	
R216	0523.680	RES 68R SMD 5% 0W10 0805	1	
RP1	0577.103	RESNET 10KX15 5% 16PSOIC	1	
RP2	0576.680	RESNET 68RX8 5% 16P SOIC	1	
RP3	0577.473	RESNET 47KX15 5% 16PSOIC	1	
RP4	0576.680	RESNET 68RX8 5% 16P SOIC	1	
RP5	0576.680	RESNET 68RX8 5% 16P SOIC	1	
RP6	0576.680	RESNET 68RX8 5% 16P SOIC	1	
RP7	0576.680	RESNET 68RX8 5% 16P SOIC	1	
RP8	0576.330	RESNET 33RX8 5% 16P SOIC	1	
RP9	0576.330	RESNET 33RX8 5% 16P SOIC	1	
RP10	0576.472	RESNET 4K7X8 5% 16P SOIC	1	
SK1	0800.995	CONRD 15WSKT RA HD+RFI+L	1	
SK2	0801.202	CONR 20W FLEX PCB	1	
SK3	0801.202	CONR 20W FLEX PCB	1	
SK4	0800.644	CONR 3, 5MM RA PCB JKSKT	1	
SK5	0800.487	CONR 17W SKT HSNG .1 PCB	1	
SK6	0800.925	CONR 9W SKT M/DIN RA RFI	1	
SK7	0800.486	CONR 5W SKT HSNG 0.1 PCB	1	
SK8	0800.486	CONR 5W SKT HSNG 0.1 PCB	1	
SK9	0800.487	CONR 17W SKT HSNG .1 PCB	1	
SK10	0898.005	CONRD 25W SKT RAPCB+RFI+L	1	
SW1	0805.704	SW 2P MOM CO P/B RA PCB	1	
SW2	0805.910	SW DPST 250V 2A ROC SNP	1	
TP1	0800.060	CONR 1W WAFR 0.1 ST PCB	1	
TP2	0800.060	CONR 1W WAFR 0.1 ST PCB	1	
TP3	0800.060	CONR 1W WAFR 0.1 ST PCB	1	
U1	0825.001	MODUL UHF PAL E36 6MHZSND	1	
X1	0820.043	XTAL 4.433619MHZ HC18	1	
X2	0821.327	XTAL 32.768KHZ CC 0.05P	1	
X3	0820.242	XTAL OSC 24MHZ 14/.3 CMOS	1	
X4	0820.361	XTAL OSC 36MHZ CMOS DIL	1	
X5	0820.253	XTAL 25.175MHZ HC49 5, 08H	1	
X7	0820.240	XTAL 24.00MHZ HC18/V CAN	1	

ITEM	PART No.	DESCRIPTION	QTY	Remarks
1	0294.000	BARE PCB		1
2	0194.000/A	(2M) PCB ASSEMBLY DWG	1	PER BATCH
3	0194.000/C	PCB CIRCUIT DIAGRAM	1	PER BATCH
5	0494.052	C (2M) PCB LABEL	1	
6	0294.074	PSU INSULATION SHEET	1	
7	0494.055	PCB HEATSINK LABEL	1	
9	0800.070	CONR 2W SHUNT 0.1	5	LK6(x2)1420 22
10	0800.070	CONR 2W SHUNT 0.1	1	LK2 (See Note on Sht 13)
11	0870.420	WIRE 22SWG CPR TIN	A/R	
12	0885.310	WSHR INS MTG XTAL HC49	1	Use with X5
13	0884.038	RIVET PLST SNAP 6.35 THK	2	Use with Items 1 and 6
14	0884.042	RIVET POP DOME 3.2D & THK	2	Use with Items 1 and HS1
16	0882.128	SCW M3x8 PAN HD POSI	1	Use with Items 6 and Q2
17	0882.902	NUT M3 STL FULL Z/PAS	1	Use with Items 6 and Q2
18	0882.972	WSHR M3 SPRF IT STL	1	Use with Items 6 and Q2
19	0902.004	LABEL SERIAL PCB 40x10mm	1	
20	0945.000	HEAT SINK COMPOUND SI	A/R	Use with HS1 and Q2
21	0815.910	FUSE CLIP 5MMD SE PCB	2	FS1
22	0800.103	SKT IC 40W ZIP SUPA	1	IC6
23	0800.103	SKT IC 40W ZIP SUPA	1	IC11
24	0800.197	SKT STRIP 3/0.1 TURN	1	IC12
25	0800.102	SKT IC 42/0.6 SUPA	1	IC17
26	0800.102	SKT IC 42/0.6 SUPA	1	IC18
BT2	0817.014	BAT NI 1V2 280MAH VT PCB	1	
C1	0635.100	CPCTR 10U ALEC 16V RAD	1	
C2	0635.230	CPCTR 220U ALEC 16V RAD	1	
C3	0692.473	CPCTR 47N CML 20% 805	1	
C4				NOT FITTED
C5				NOT FITTED
C6	0635.230	CPCTR 220U ALEC 16V RAD	1	
C7				NOT FITTED
C8	0693.107	CPCTR 100N DCPLR SMD 805	1	
C9	0635.100	CPCTR 10U ALEC 16V RAD	1	
C10	0635.106	CPCTR 1000U ALEC 35V RAD	1	
C11	0692.104	CPCTR 100N CML 20% 805	1	
C12	0650.333	CPCTR MPSTR 33N 50V 20%	1	
C13	0691.222	CPCTR 2N2 CML 10% 805	1	
C14	0635.470	CPCTR 47U ALEC 16V RAD	1	
C15	0650.227	CPCTR MPSTR 22N 63V 5%	1	
C16	0635.470	CPCTR 47U ALEC 16V RAD	1	
C17	0692.104	CPCTR 100N CML 20% 805	1	
C18	0635.476	CPCTR 470U ALEC 35V RAD	1	
C19	0635.022	CPCTR 2U2 ALEC 50V RAD	1	
C20	0635.230	CPCTR 220U ALEC 16V RAD	1	
C21	0635.230	CPCTR 220U ALEC 16V RAD	1	
C22	0635.230	CPCTR 220U ALEC 16V RAD	1	
C23	0693.336	CPCTR 33N DCPLR SMD 805	1	
C24	0693.336	CPCTR 33N DCPLR SMD 805	1	
C25	0699.003	CPCTR TRMR 5/65P 250V	1	
C26	0690.330	CPCTR 33P CML 2% 805	1	
C27	0642.103	CPCTR 100U ALEC 25V RAD	1	
C28	0635.470	CPCTR 47U ALEC 16V RAD	1	
C29	0693.336	CPCTR 33N DCPLR SMD 805	1	
C30	0642.103	CPCTR 100U ALEC 25V RAD	1	

ITEM	PART No.	DESCRIPTION	QTY	Remarks
C158	0693,107	CPCTR 100N DCPLR SMD 805	1	
C159	0621,470	CPCTR 47U ALEC 10V AX	1	
C160	0693,107	CPCTR 100N DCPLR SMD 805	1	
C161	0635,230	CPCTR 220U ALEC 16V RAD	1	
C162	0693,336	CPCTR 33N DCPLR SMD 805	1	
C163	0693,107	CPCTR 100N DCPLR SMD 805	1	
C164	0621,470	CPCTR 47U ALEC 10V AX	1	
C165	0621,470	CPCTR 47U ALEC 10V AX	1	
C166	0693,107	CPCTR 100N DCPLR SMD 805	1	
C167	0693,336	CPCTR 33N DCPLR SMD 805	1	
C220	0635,100	CPCTR 10U ALEC 16V RAD	1	
C221	0693,336	CPCTR 33N DCPLR SMD 805	1	
C222	0693,336	CPCTR 33N DCPLR SMD 805	1	
C223	0693,336	CPCTR 33N DCPLR SMD 805	1	
D1	0794,001	DIODE SI 1N4001 100V 1A	1	
D2	0794,001	DIODE SI 1N4001 100V 1A	1	
D3	0794,001	DIODE SI 1N4001 100V 1A	1	
D4	0794,001	DIODE SI 1N4001 100V 1A	1	
D5	0794,001	DIODE SI 1N4001 100V 1A	1	
D6	0794,001	DIODE SI 1N4001 100V 1A	1	
D7	0794,001	DIODE SI 1N4001 100V 1A	1	
D8	0794,001	DIODE SI 1N4001 100V 1A	1	
D9	0790,050	DIODE SI SB 3A 40V DO201	1	
D10	0796,000	DIODE SI BAS16 SOT23	1	
D11	0796,001	DIODE SI BAV99 SOT23	1	
D12	0796,000	DIODE SI BAS16 SOT23	1	
D13	0796,000	DIODE SI BAS16 SOT23	1	
D14	0796,001	DIODE SI BAV99 SOT23	1	
D15	0796,000	DIODE SI BAS16 SOT23	1	
D16	0796,000	DIODE SI BAS16 SOT23	1	
D17	0796,001	DIODE SI BAV99 SOT23	1	
D18	0796,000	DIODE SI BAS16 SOT23	1	
D19	0796,000	DIODE SI BAS16 SOT23	1	
D20	0796,000	DIODE SI BAS16 SOT23	1	
FS1	0815,252	FUSE 250MA T 20X5MMD HBC	1	
FS2	0815,503	FUSE 250MA F 63VAC SMD	1	
FS3	0815,503	FUSE 250MA F 63VAC SMD	1	
FS4	0815,503	FUSE 250MA F 63VAC SMD	1	
FS5	0815,503	FUSE 250MA F 63VAC SMD	1	
HS1	0294,071	HERON HEATSINK	1	
IC1	0701,146	IC 1145 RGB ENC 24P SOIC	1	
IC2	0294,031	IC KBD CNTRLR (0708,053)	1	
IC3	0764,145	IC 74LS145 TTL 16P SOIC	1	
IC4	0764,145	IC 74LS145 TTL 16P SOIC	1	
IC5	0708,584	IC 8583 RTC RAM 8P SOIC	1	
IC6	0704,129	IC DRAM 256Kx16 80nS ZIP	1	
IC7	0764,366	IC 74LS366 TTL 16P SOIC	1	
IC8	0762,014	IC 74HCT14 CMOS 14P SOIC	1	
IC9	0764,241	IC 74LS241 TTL 20P SOIC	1	
IC10	0771,386	IC LM386 AUDIO AMP 8PSOIC	1	
IC11	0704,129	IC DRAM 256Kx16 80nS ZIP	1	
IC12	0702,401	IC DS2400 ID 3W SIL 0.1	1	
IC13				NOT FITTED
IC14	0762,574	IC 74HCT574 CMOS 20P SOIC	1	
IC15	0762,574	IC 74HCT574 CMOS 20P SOIC	1	
IC16	0735,489	IC 1489A RS232 RX 14SOIC	1	
IC17	0296,061	RISC OS GREEN (X16) ROM 1	1	
IC18	0296,062	RISC OS GREEN (X16) ROM 2	1	
IC19	0735,488	IC 1488 RS232 DRVR 14SOIC	1	
IC20	0761,138	IC 74HC138 CMOS 16P SOIC	1	
IC21	0704,128	IC DRAM 256KX16 80NS SOJ	1	
IC22	0704,128	IC DRAM 256KX16 80NS SOJ	1	
IC23	0735,489	IC 1489A RS232 RX 14SOIC	1	

ITEM	PART No.	DESCRIPTION	QTY	Remarks
IC24	0701,711	IC 82C711 UCNTRLR 100QFP	1	
IC25	0761,139	IC 74HC139 CMOS 16P SOIC	1	
IC26	0762,014	IC 74HCT14 CMOS 14P SOIC	1	
IM1	0194,002	HERON CPU MODULE	1	
IM2	0194,007	AUDIO HYBRID ADELIADE 17P	1	
L1	0194,012	TRNSFMR 25VA 240VAC 2R FX	1	
L2	0860,503	IND CHK 1A 80R@100MHZ SMD	1	
L3	0860,503	IND CHK 1A 80R@100MHZ SMD	1	
L4	0860,210	IND 150UH 20% 5A TOROID P	1	
L5	0860,020	CHOKE RF 100UH 10% AX	1	
L6	0860,503	IND CHK 1A 80R@100MHZ SMD	1	
L7	0825,055	BANDPASS FLTR 4.43MHZ 7P	1	
L8	0860,005	CHOKE RF 33UH AX Q45	1	
L9	0825,056	LOW PASS FLTR 180NS 12P	1	
L10	0860,012	CHOKE RF 2U2H AX Q30	1	
L11	0860,503	IND CHK 1A 80R@100MHZ SMD	1	
L12	0860,005	CHOKE RF 33UH AX Q45	1	
L13	0860,503	IND CHK 1A 80R@100MHZ SMD	1	
L14	0860,503	IND CHK 1A 80R@100MHZ SMD	1	
L15	0860,503	IND CHK 1A 80R@100MHZ SMD	1	
L16	0860,503	IND CHK 1A 80R@100MHZ SMD	1	
L17	0860,503	IND CHK 1A 80R@100MHZ SMD	1	
LK1	0870,420	WIRE 22SWG CPR TIN	1	(See Note on Sht 13)
LK2	0800,050	CONR 2W WAFR 0.1 ST PCB	1	
LK3	0800,450	CONR 6W WAFR 0.1 ST PCB	1	
LK4				NOT FITTED
LK5				NOT FITTED
LK6	0800,876	CONR 8W WAFR 0.1 2ROW-ST	1	
LK7				NOT FITTED
LK8				NOT FITTED
LK9				NOT FITTED
LK10				NOT FITTED
LK11				NOT FITTED
LK12				NOT FITTED
LK13				NOT FITTED
LK14	0800,051	CONR 3W WAFR 0.1 ST PCB	1	
LK15				NOT FITTED
LK16	0800,450	CONR 6W WAFR 0.1 ST PCB	1	
LK18	0800,050	CONR 2W WAFR 0.1 ST PCB	1	
LK19	0800,458	CONR 2W WAFR 0.1 ST LK	1	
LK20	0800,051	CONR 3W WAFR 0.1 ST PCB	1	
LK21	0800,050	CONR 2W WAFR 0.1 ST PCB	1	
LK22	0800,051	CONR 3W WAFR 0.1 ST PCB	1	
LK30				NOT FITTED
PL1	0800,235	CONR 2W WAFR ST 0.312 LK	1	
PL2	0800,203	FSTN TAB 6	3MM	X08 ST PCB1
PL3	0800,203	FSTN TAB 6	3MM	X08 ST PCB1
PL4	0800,203	FSTN TAB 6	3MM	X08 ST PCB1
PL5	0800,932	CONR 4W PLG PCB ST DISC P	1	
PL6	0898,003	CONRD 9WPLG RA PCB+RFI+L	1	
PL7	0898,003	CONRD 9WPLG RA PCB+RFI+L	1	
PL8	0898,003	CONRD 9WPLG RA PCB+RFI+L	1	
PL9	0898,002	CONR 34W BOX IDC LP ST	1	
Q1	0778,212	VOLT REG 78L12 12V 8PSOIC	1	
Q2	0778,106	VOLT REG L4960 ADJ 2A5	1	
Q3	0784,849	TRANS BC849C NPN SOT23	1	
Q4	0784,906	TRANS SM3906 PNP SOT23	1	
Q5	0784,906	TRANS SM3906 PNP SOT23	1	
Q6	0784,906	TRANS SM3906 PNP SOT23	1	
Q7	0784,906	TRANS SM3906 PNP SOT23	1	
Q8	0784,906	TRANS SM3906 PNP SOT23	1	
Q9	0784,906	TRANS SM3906 PNP SOT23	1	

A3010 1M (ARM250) main PCB assembly parts list, issue 2

ITEM	PART No.	DESCRIPTION	QTY	Remarks
R130	0523,472	RES 4K7 SMD 5% 0W10 0805	1	
R131	0523,472	RES 4K7 SMD 5% 0W10 0805	1	
R132	0523,680	RES 68R SMD 5% 0W10 0805	1	
R133	0523,680	RES 68R SMD 5% 0W10 0805	1	
R134	0523,680	RES 68R SMD 5% 0W10 0805	1	
R135	0523,331	RES 330R SMD 5% 0W10 0805	1	
R136	0523,103	RES 10K SMD 5% 0W10 0805	1	
R137	0523,680	RES 68R SMD 5% 0W10 0805	1	
R138	0523,472	RES 4K7 SMD 5% 0W10 0805	1	
R139	0523,102	RES 1K0 SMD 5% 0W10 0805	1	
R140	0523,472	RES 4K7 SMD 5% 0W10 0805	1	
R141	0523,472	RES 4K7 SMD 5% 0W10 0805	1	
R142	0523,102	RES 1K0 SMD 5% 0W10 0805	1	
R143	0523,102	RES 1K0 SMD 5% 0W10 0805	1	
R144	0523,102	RES 1K0 SMD 5% 0W10 0805	1	
R145	0523,102	RES 1K0 SMD 5% 0W10 0805	1	
R210	0523,182	RES 1K8 SMD 5% 0W10 0805	1	
R211	0523,332	RES 3K3 SMD 5% 0W10 0805	1	
R212	0523,332	RES 3K3 SMD 5% 0W10 0805	1	
R213	0523,222	RES 2K2 SMD 5% 0W10 0805	1	
R214	0523,103	RES 10K SMD 5% 0W10 0805	1	
R215	0523,000	RES ZEROR SMD 0W10 0805	1	
R216	0523,680	RES 68R SMD 5% 0W10 0805	1	
RP1	0577,103	RESNET 10KX15 5% 16PSOIC	1	
RP2	0576,680	RESNET 68RX8 5% 16P SOIC	1	
RP3	0577,473	RESNET 47KX15 5% 16PSOIC	1	
RP4	0576,680	RESNET 68RX8 5% 16P SOIC	1	
RP5	0576,680	RESNET 68RX8 5% 16P SOIC	1	
RP6	0576,680	RESNET 68RX8 5% 16P SOIC	1	
RP7	0576,680	RESNET 68RX8 5% 16P SOIC	1	
RP8	0576,330	RESNET 33RX8 5% 16P SOIC	1	
RP9	0576,330	RESNET 33RX8 5% 16P SOIC	1	
RP10	0576,472	RESNET 4K7X8 5% 16P SOIC	1	
SK1	0800,995	CONRD 15WSKT RA HD+RFI+L	1	
SK2	0801,202	CONR 20W FLEX PCB	1	
SK3	0801,202	CONR 20W FLEX PCB	1	
SK4	0800,644	CONR 3.5MM RA PCB JKSKT	1	
SK5	0800,487	CONR 17W SKT HSNG .1 PCB	1	
SK6	0800,925	CONR 9W SKT M/DIN RA RFI	1	
SK7	0800,486	CONR 5W SKT HSNG 0.1 PCB	1	
SK8	0800,486	CONR 5W SKT HSNG 0.1 PCB	1	
SK9	0800,487	CONR 17W SKT HSNG .1 PCB	1	
SK10	0898,005	CONRD 25W SKT RAPCB+RFI+L	1	
SW1	0805,704	SW 2P MOM CO P/B RA PCB	1	
SW2	0805,910	SW DPST 250V 2A ROC SNP	1	
TP1	0800,060	CONR 1W WAFR 0.1 ST PCB	1	
TP2	0800,060	CONR 1W WAFR 0.1 ST PCB	1	
TP3	0800,060	CONR 1W WAFR 0.1 ST PCB	1	
U1	0825,001	MODUL UHF PAL E36 6MHZSND	1	
X1	0820,043	XTAL 4.433619MHZ HC18	1	
X2	0821,327	XTAL 32.768KHZ CC 0.05P	1	
X3	0820,242	XTAL OSC 24MHZ 14/.3 CMOS	1	
X4	0820,361	XTAL OSC 36MHZ CMOS DIL	1	
X5	0820,253	XTAL 25.175MHZ HC49 5 08H	1	
X7	0820,240	XTAL 24.00MHZ HC18/V CAN	1	

ITEM	PART No.	DESCRIPTION	QTY	Remarks
1	0294,003	BARE PCB		1
2	0194,003/A	PCB ASSEMBLY DWG		1 PER BATCH
3	0194,003/C	PCB CIRCUIT DIAGRAM		1 PER BATCH
5	0494,055	PCB HEATSINK LABEL	1	
6	0294,074	PSU INSULATION SHEET	1	
9	0800,070	CONR 2W SHUNT 0.1	5	LK6(x2),14,20 22
10	0800,070	CONR 2W SHUNT 0.1	1	LK2 (See Note on Sht 13)
11	0870,420	WIRE 22SWG CPR TIN	A/R	
12	0885,310	WSHR INS MTG XTAL HC49	1	Use with X5
13	0884,038	RIVET PLST SNAP 6.35 THK	2	Use with items 1 and 6
14	0884,042	RIVET POP DOME 32D & THK	2	Use with items 1 and HS1
16	0882,128	SCW M3x8 PAN HD POSI	1	Use with items 6 and Q2
17	0882,902	NUT M3 STL FULL Z/PAS	1	Use with items 6 and Q2
18	0882,972	WSHR M3 SPRF IT STL	1	Use with items 6 and Q2
19	0902,004	LABEL SERIAL PCB 40x10mm	1	
20	0945,000	HEAT SINK COMPOUND SI	A/R	Use with HS1 and Q2
21	0815,910	FUSE CLIP 5MMD SE PCB	2	FS1
22	0800,103	SKT IC 40W ZIP SUPA	1	IC6
23	0800,103	SKT IC 40W ZIP SUPA	1	IC11
24	0800,197	SKT STRIP 3/0.1 TURN	1	IC12
25	0800,102	SKT IC 42/0.6 SUPA	1	IC17
26	0800,102	SKT IC 42/0.6 SUPA	1	IC18
BT2	0817,014	BAT NI 1V2 280MAH VT PCB	1	
C1	0635,100	CPCTR 10U ALEC 16V RAD	1	
C2	0635,230	CPCTR 220U ALEC 16V RAD	1	
C3	0692,473	CPCTR 47N CML 20% 805	1	
C4				NOT FITTED
C5				NOT FITTED
C6	0635,230	CPCTR 220U ALEC 16V RAD	1	
C7				NOT FITTED
C8	0693,107	CPCTR 100N DCPLR SMD 805	1	
C9	0635,100	CPCTR 10U ALEC 16V RAD	1	
C10	0635,106	CPCTR 1000U ALEC 35V RAD	1	
C11	0692,104	CPCTR 100N CML 20% 805	1	
C12	0650,333	CPCTR MPSTR 33N 50V 20%	1	
C13	0691,222	CPCTR 2N2 CML 10% 805	1	
C14	0635,470	CPCTR 47U ALEC 16V RAD	1	
C15	0650,472	CPCTR MPSTR 4N7 63V 10%	1	
C16	0635,470	CPCTR 47U ALEC 16V RAD	1	
C17	0692,104	CPCTR 100N CML 20% 805	1	
C18	0635,476	CPCTR 470U ALEC 35V RAD	1	
C19	0635,024	CPCTR ALEC 2U2 50V HT 5MM	1	
C20	0635,230	CPCTR 220U ALEC 16V RAD	1	
C21	0635,230	CPCTR 220U ALEC 16V RAD	1	
C22	0635,226	CPCTR 220U ALEC 16V RAD H	1	
C23	0693,336	CPCTR 33N DCPLR SMD 805	1	
C24	0693,336	CPCTR 33N DCPLR SMD 805	1	
C25	0699,003	CPCTR TRMR 5/65P 250V	1	
C26	0690,330	CPCTR 33P CML 2% 805	1	
C27				NOT FITTED
C28	0635,470	CPCTR 47U ALEC 16V RAD	1	
C29	0693,336	CPCTR 33N DCPLR SMD 805	1	
C30	0642,103	CPCTR 100U ALEC 25V RAD	1	
C31	0693,336	CPCTR 33N DCPLR SMD 805	1	
C32	0692,104	CPCTR 100N CML 20% 805	1	

ITEM	PART No.	DESCRIPTION	QTY	Remarks
C161	0635.230	CPCTR 220U ALEC 16V RAD	1	
C162	0693.336	CPCTR 33N DCPLR SMD 805	1	
C163	0693.107	CPCTR 100N DCPLR SMD 805	1	
C164	0621.470	CPCTR 47U ALEC 10V AX	1	
C165	0621.470	CPCTR 47U ALEC 10V AX	1	
C166	0693.107	CPCTR 100N DCPLR SMD 805	1	
C167	0693.336	CPCTR 33N DCPLR SMD 805	1	
C220	0635.100	CPCTR 10U ALEC 16V RAD	1	
C221	0693.336	CPCTR 33N DCPLR SMD 805	1	
C222	0693.336	CPCTR 33N DCPLR SMD 805	1	
C223	0693.336	CPCTR 33N DCPLR SMD 805	1	
C224	0690.120	CPCTR 12P CML 2% 805	1	
C225				NOT FITTED
C226				NOT FITTED
C227	0693.336	CPCTR 33N DCPLR SMD 805	1	
C228	0635.230	CPCTR 220U ALEC 16V RAD	1	
C229	0693.336	CPCTR 33N DCPLR SMD 805	1	
D1	0794.001	DIODE SI 1N4001 100V 1A	1	
D2	0794.001	DIODE SI 1N4001 100V 1A	1	
D3	0794.001	DIODE SI 1N4001 100V 1A	1	
D4	0794.001	DIODE SI 1N4001 100V 1A	1	
D5	0794.001	DIODE SI 1N4001 100V 1A	1	
D6	0794.001	DIODE SI 1N4001 100V 1A	1	
D7	0794.001	DIODE SI 1N4001 100V 1A	1	
D8	0794.001	DIODE SI 1N4001 100V 1A	1	
D9	0790.050	DIODE SI SB 3A 40V DO201	1	
D10	0796.000	DIODE SI BAS16 SOT23	1	
D11	0796.001	DIODE SI BAV99 SOT23	1	
D12	0796.000	DIODE SI BAS16 SOT23	1	
D13	0796.000	DIODE SI BAS16 SOT23	1	
D14	0796.001	DIODE SI BAV99 SOT23	1	
D15	0796.000	DIODE SI BAS16 SOT23	1	
D16	0796.000	DIODE SI BAS16 SOT23	1	
D17	0796.001	DIODE SI BAV99 SOT23	1	
D18	0796.000	DIODE SI BAS16 SOT23	1	
D19	0796.000	DIODE SI BAS16 SOT23	1	
D20	0796.000	DIODE SI BAS16 SOT23	1	
D21	0796.000	DIODE SI BAS16 SOT23	1	
FS1	0815.252	FUSE 250MA T 20X5MMD HBC	1	
FS2	0815.503	FUSE 250MA F 63VAC SMD	1	
FS3	0815.503	FUSE 250MA F 63VAC SMD	1	
FS4	0815.503	FUSE 250MA F 63VAC SMD	1	
FS5	0815.503	FUSE 250MA F 63VAC SMD	1	
HS1	0294.071	ADELAIDE HEATSINK	1	
IC1	0701.146	IC 1145 RGB ENC 24P SOIC	1	
IC2	0294.031	IC KBD CNTRLR [0708053]	1	
IC3	0764.145	IC 74LS145 TTL 16P SOIC	1	
IC4	0764.145	IC 74LS145 TTL 16P SOIC	1	
IC5	0708.584	IC 8583 RTC RAM 8P SOIC	1	
IC6				NOT FITTED
IC7	0764.366	IC 74LS366 TTL 16P SOIC	1	
IC8	0762.014	IC 74HCT14 CMOS 14P SOIC	1	
IC9	0764.241	IC 74LS241 TTL 20P SOIC	1	
IC10	0771.386	IC LM386 AUDIO AMP 8PSOIC	1	
IC11				NOT FITTED
IC12	0702.401	IC DS2400 ID 3W SIL 0.1	1	
IC13	0294.030	IC ARM250 160P PQFP	1	
IC14	0762.574	IC 74HCT574 CMOS 20P SOIC	1	
IC15	0762.574	IC 74HCT574 CMOS 20P SOIC	1	
IC16	0735.489	IC 1489A RS232 RX 14SOIC	1	
IC17	0296.061	RISC OS GREEN (X16) ROM 1	1	
IC18	0296.062	RISC OS GREEN (X16) ROM 2	1	
IC19	0735.488	IC 1488 RS232 DRVR 14SOIC	1	

ITEM	PART No.	DESCRIPTION	QTY	Remarks
IC20	0761.138	IC 74HC138 CMOS 16P SOIC	1	
IC21	0704.128	IC DRAM 256KX16 80NS SOJ	1	
IC22	0704.128	IC DRAM 256KX16 80NS SOJ	1	
IC23	0735.489	IC 1489A RS232 RX 14SOIC	1	
IC24	0701.711	IC 82C711 UCNTRLR 100QFP	1	
IC25	0761.139	IC 74HC139 CMOS 16P SOIC	1	
IC27	0758.032	IC 74AC32 CMOS 14P SOIC	1	
IC29	0756.924	IC 74HC4024 CMOS 14P SOIC	1	
IC30	0761.010	IC 74HC10 CMOS 14P SOIC	1	
IM2	0194.007	AUDIO HYBRID 17P	1	
L1	0194.012	TRNSFMR 25VA 240VAC 2R FX	1	
L2	0860.503	IND CHK 1A 80R@100MHZ SMD	1	
L3	0860.503	IND CHK 1A 80R@100MHZ SMD	1	
L4	0860.210	IND 150UH 20% 5A TOROID P	1	
L5	0860.020	CHOKE RF 100UH 10% AX	1	
L6	0860.503	IND CHK 1A 80R@100MHZ SMD	1	
L7	0825.055	BANDPASS FLTR 4.43MHZ 7P	1	
L8	0860.005	CHOKE RF 33UH AX Q45	1	
L9	0825.056	LOW PASS FLTR 180NS 12P	1	
L10	0860.012	CHOKE RF 2U2H AX Q30	1	
L11	0860.503	IND CHK 1A 80R@100MHZ SMD	1	
L12	0860.005	CHOKE RF 33UH AX Q45	1	
L13	0860.503	IND CHK 1A 80R@100MHZ SMD	1	
L14	0860.503	IND CHK 1A 80R@100MHZ SMD	1	
L15	0860.503	IND CHK 1A 80R@100MHZ SMD	1	
L16	0860.503	IND CHK 1A 80R@100MHZ SMD	1	
L17	0860.503	IND CHK 1A 80R@100MHZ SMD	1	
LK1	0870.420	WIRE 22SWG CPR TIN	1	(See Note on Sht 13)
LK2	0800.050	CONR 2W WAFR 0.1 ST PCB	1	
LK3	0800.450	CONR 6W WAFR 0.1 ST PCB	1	
LK4				NOT FITTED
LK5				NOT FITTED
LK6	0800.876	CONR 8W WAFR 0.1 2ROW ST	1	
LK7				NOT FITTED
LK8				NOT FITTED
LK9				NOT FITTED
LK10				NOT FITTED
LK11				NOT FITTED
LK12				NOT FITTED
LK13				NOT FITTED
LK14	0800.051	CONR 3W WAFR 0.1 ST PCB	1	
LK15				NOT FITTED
LK16	0800.450	CONR 6W WAFR 0.1 ST PCB	1	
LK17				NOT FITTED
LK18	0800.050	CONR 2W WAFR 0.1 ST PCB	1	
LK19	0800.458	CONR 2W WAFR 0.1 ST LK	1	
LK20	0800.051	CONR 3W WAFR 0.1 ST PCB	1	
LK21	0800.050	CONR 2W WAFR 0.1 ST PCB	1	
LK22	0800.051	CONR 3W WAFR 0.1 ST PCB	1	
LK30				NOT FITTED
PL1	0800.235	CONR 2W WAFR ST 0.312 LK	1	
PL2	0800.203	FSTN TAB 6.3MMX0 8 ST PCB	1	
PL3	0800.203	FSTN TAB 6.3MMX0 8 ST PCB	1	
PL4	0800.203	FSTN TAB 6.3MMX0 8 ST PCB	1	
PL5	0800.932	CONR 4W PLG PCB ST DISC P	1	
PL6	0898.003	CONRD 9WPLG RA PCB+RFI+L	1	
PL7	0898.003	CONRD 9WPLG RA PCB+RFI+L	1	
PL8	0898.003	CONRD 9WPLG RA PCB+RFI+L	1	
PL9	0898.002	CONR 34W BOX IDC LP ST	1	
Q1	0778.212	VOLT REG 78L12 12V 8PSOIC	1	
Q2	0778.106	VOLT REG L4960 ADJ 2A5	1	
Q3	0784.849	TRANS BC849C NPN SOT23	1	

ITEM	PART No.	DESCRIPTION	QTY	Remarks
R127	0522,380	RES 6K81 SMD 1% 0W25 1206	1	
R128	0522,425	RES 18K2 SMD 1% 0W25 1206	1	
R129	0523,122	RES 1K2 SMD 5% 0W10 0805	1	
R130	0523,472	RES 4K7 SMD 5% 0W10 0805	1	
R131	0523,472	RES 4K7 SMD 5% 0W10 0805	1	
R132	0523,560	RES 56R SMD 5% 0W10 0805	1	
R133	0523,560	RES 56R SMD 5% 0W10 0805	1	
R134	0523,560	RES 56R SMD 5% 0W10 0805	1	
R135	0523,331	RES 330R SMD 5% 0W10 0805	1	
R136	0523,103	RES 10K SMD 5% 0W10 0805	1	
R137	0523,560	RES 56R SMD 5% 0W10 0805	1	
R138				NOT FITTED
R139	0523,102	RES 1K0 SMD 5% 0W10 0805	1	
R140				NOT FITTED
R141				NOT FITTED
R142	0523,102	RES 1K0 SMD 5% 0W10 0805	1	
R143	0523,102	RES 1K0 SMD 5% 0W10 0805	1	
R144	0523,102	RES 1K0 SMD 5% 0W10 0805	1	
R145	0523,102	RES 1K0 SMD 5% 0W10 0805	1	
R210	0523,182	RES 1K8 SMD 5% 0W10 0805	1	
R211	0523,332	RES 3K3 SMD 5% 0W10 0805	1	
R212	0523,332	RES 3K3 SMD 5% 0W10 0805	1	
R213	0523,222	RES 2K2 SMD 5% 0W10 0805	1	
R214	0523,103	RES 10K SMD 5% 0W10 0805	1	
R215	0523,000	RES ZEROR SMD 0W10 0805	1	
R217	0523,330	RES 33R SMD 5% 0W10 0805	1	
R218	0523,470	RES 47R SMD 5% 0W10 0805	1	
R219	0523,680	RES 68R SMD 5% 0W10 0805	1	
R220	0523,470	RES 47R SMD 5% 0W10 0805	1	
R221	0523,330	RES 33R SMD 5% 0W10 0805	1	
R222	0523,680	RES 68R SMD 5% 0W10 0805	1	
R223	0523,221	RES 220R SMD 5% 0W10 0805	1	
R224	0523,000	RES ZEROR SMD 0W10 0805	1	
R225	0523,330	RES 33R SMD 5% 0W10 0805	1	

ITEM	PART No.	DESCRIPTION	QTY	Remarks
R226	0523,330	RES 33R SMD 5% 0W10 0805	1	
R227	0523,330	RES 33R SMD 5% 0W10 0805	1	
R228	0523,330	RES 33R SMD 5% 0W10 0805	1	
RP1	0577,103	RESNET 10KX15 5% 16PSOIC	1	
RP2	0576,680	RESNET 68RX8 5% 16P SOIC	1	
RP3	0577,473	RESNET 47KX15 5% 16PSOIC	1	
RP4	0576,680	RESNET 68RX8 5% 16P SOIC	1	
RP5	0576,680	RESNET 68RX8 5% 16P SOIC	1	
RP6	0576,680	RESNET 68RX8 5% 16P SOIC	1	
RP7	0576,680	RESNET 68RX8 5% 16P SOIC	1	
RP8	0576,330	RESNET 33RX8 5% 16P SOIC	1	
RP9	0576,330	RESNET 33RX8 5% 16P SOIC	1	
RP10	0576,472	RESNET 4K7X8 5% 16P SOIC	1	
RP11	0576,680	RESNET 68RX8 5% 16P SOIC	1	
SK1	0800,995	CONRD 15WSKT RA HD+RFI+L	1	
SK2	0801,202	CONR 20W FLEX PCB	1	
SK3	0801,202	CONR 20W FLEX PCB	1	
SK4	0800,644	CONR 3 5MM RA PCB JKSKT	1	
SK5	0800,487	CONR 17W SKT HSNG .1 PCB	1	
SK6	0800,925	CONR 9W SKT M/DIN RA RFI	1	
SK7	0800,486	CONR 5W SKT HSNG 0.1 PCB	1	
SK8	0800,486	CONR 5W SKT HSNG 0.1 PCB	1	
SK9	0800,487	CONR 17W SKT HSNG .1 PCB	1	
SK10	0898,005	CONRD 25W SKT RAPCB+RFI+L	1	
SW1	0805,704	SW 2P MOM CO P/B RA PCB	1	
SW2	0805,910	SW DPST 250V 2A ROC SNP	1	
TP1	0800,060	CONR 1W WAFR 0.1 ST PCB	1	
TP2	0800,060	CONR 1W WAFR 0.1 ST PCB	1	
TP3	0800,060	CONR 1W WAFR 0.1 ST PCB	1	
U1	0825,001	MODUL UHF PAL E36 6MHZSND	1	
X1	0820,043	XTAL 4.433619MHZ HC18	1	
X2	0821,327	XTAL 32.768KHZ CC 0.05P	1	
X4	0820,721	XTAL OSC 72MHZ CMOS DIL	1	
X5	0820,253	XTAL 25.175MHZ HC49 5 08H	1	
X7	0820,240	XTAL 24.00MHZ HC18/V CAN	1	

ITEM	PART No.	DESCRIPTION	QTY	Remarks
C94	0693.336	CPCTR 33N DCPLR SMD 805	1	
C95	0693.336	CPCTR 33N DCPLR SMD 805	1	
C96	0693.336	CPCTR 33N DCPLR SMD 805	1	
C98	0690.120	CPCTR 12P CML 2% 805	1	
C99	0690.120	CPCTR 12P CML 2% 805	1	
C100	0693.336	CPCTR 33N DCPLR SMD 805	1	
C101	0693.336	CPCTR 33N DCPLR SMD 805	1	
C102	0693.336	CPCTR 33N DCPLR SMD 805	1	
C103	0693.336	CPCTR 33N DCPLR SMD 805	1	
C104	0693.336	CPCTR 33N DCPLR SMD 805	1	
C105	0610.010	CPCTR 10U TANT 10V 20% 5P	1	
C106	0610.047	CPCTR 47U TANT 10V 20% 5P	1	
C107	0693.336	CPCTR 33N DCPLR SMD 805	1	
C108	0690.101	CPCTR 100P CML 2% 805	1	
C109	0693.336	CPCTR 33N DCPLR SMD 805	1	
C110	0635.230	CPCTR 220U ALEC 16V RAD	1	
C111	0690.101	CPCTR 100P CML 2% 805	1	
C112	0690.101	CPCTR 100P CML 2% 805	1	
C113	0690.101	CPCTR 100P CML 2% 805	1	
C114	0690.101	CPCTR 100P CML 2% 805	1	
C115	0690.101	CPCTR 100P CML 2% 805	1	
C116	0693.336	CPCTR 33N DCPLR SMD 805	1	
C117	0693.336	CPCTR 33N DCPLR SMD 805	1	
C118	0635.230	CPCTR 220U ALEC 16V RAD	1	
C119	0693.336	CPCTR 33N DCPLR SMD 805	1	
C120	0610.010	CPCTR 10U TANT 10V 20% 5P	1	
C121	0693.336	CPCTR 33N DCPLR SMD 805	1	
C122	0690.101	CPCTR 100P CML 2% 805	1	
C123	0690.101	CPCTR 100P CML 2% 805	1	
C124	0693.336	CPCTR 33N DCPLR SMD 805	1	
C125	0690.101	CPCTR 100P CML 2% 805	1	
C126	0690.101	CPCTR 100P CML 2% 805	1	
C127	0691.102	CPCTR 1N CML 10% 805	1	
C128	0690.220	CPCTR 22P CML 2% 805	1	
C129	0690.220	CPCTR 22P CML 2% 805	1	
C130	0693.336	CPCTR 33N DCPLR SMD 805	1	
C131	0610.010	CPCTR 10U TANT 10V 20% 5P	1	
C132	0690.101	CPCTR 100P CML 2% 805	1	
C133	0691.102	CPCTR 1N CML 10% 805	1	
C134	0690.101	CPCTR 100P CML 2% 805	1	
C135	0691.102	CPCTR 1N CML 10% 805	1	
C136	0690.101	CPCTR 100P CML 2% 805	1	
C137	0693.336	CPCTR 33N DCPLR SMD 805	1	
C138	0693.336	CPCTR 33N DCPLR SMD 805	1	
C139	0610.010	CPCTR 10U TANT 10V 20% 5P	1	
C140	0693.336	CPCTR 33N DCPLR SMD 805	1	
C141	0691.102	CPCTR 1N CML 10% 805	1	
C142	0691.102	CPCTR 1N CML 10% 805	1	
C143	0691.102	CPCTR 1N CML 10% 805	1	
C144	0691.102	CPCTR 1N CML 10% 805	1	
C145	0691.102	CPCTR 1N CML 10% 805	1	
C146	0693.336	CPCTR 33N DCPLR SMD 805	1	
C147	0693.107	CPCTR 100N DCPLR SMD 805	1	
C148	0650.472	CPCTR MPSTR 4N7 63V 10%	1	
C149	0694.272	CPCTR 2N7 CML 5% 805	1	
C150	0650.155	CPCTR MPSTR 150N 63V 5%	1	
C151	0693.336	CPCTR 33N DCPLR SMD 805	1	
C152	0693.107	CPCTR 100N DCPLR SMD 805	1	
C153	0690.101	CPCTR 100P CML 2% 805	1	
C154	0690.101	CPCTR 100P CML 2% 805	1	
C155	0690.101	CPCTR 100P CML 2% 805	1	
C156	0690.101	CPCTR 100P CML 2% 805	1	
C157	0635.470	CPCTR 47U ALEC 16V RAD	1	

ITEM	PART No.	DESCRIPTION	QTY	Remarks
C158	0693.107	CPCTR 100N DCPLR SMD 805	1	
C159	0621.470	CPCTR 47U ALEC 10V AX	1	
C160	0693.107	CPCTR 100N DCPLR SMD 805	1	
C161	0635.230	CPCTR 220U ALEC 16V RAD	1	
C162	0693.336	CPCTR 33N DCPLR SMD 805	1	
C163	0693.107	CPCTR 100N DCPLR SMD 805	1	
C164	0621.470	CPCTR 47U ALEC 10V AX	1	
C165	0621.470	CPCTR 47U ALEC 10V AX	1	
C166	0693.107	CPCTR 100N DCPLR SMD 805	1	
C167	0693.336	CPCTR 33N DCPLR SMD 805	1	
C220	0635.100	CPCTR 10U ALEC 16V RAD	1	
C221	0693.336	CPCTR 33N DCPLR SMD 805	1	
C222	0693.336	CPCTR 33N DCPLR SMD 805	1	
C223	0693.336	CPCTR 33N DCPLR SMD 805	1	
C224	0690.120	CPCTR 12P CML 2% 805	1	
C225				NOT FITTED
C226				NOT FITTED
C227	0693.336	CPCTR 33N DCPLR SMD 805	1	
C228	0635.230	CPCTR 220U ALEC 16V RAD	1	
C229	0693.336	CPCTR 33N DCPLR SMD 805	1	
D1	0794.001	DIODE SI 1N4001 100V 1A	1	
D2	0794.001	DIODE SI 1N4001 100V 1A	1	
D3	0794.001	DIODE SI 1N4001 100V 1A	1	
D4	0794.001	DIODE SI 1N4001 100V 1A	1	
D5	0794.001	DIODE SI 1N4001 100V 1A	1	
D6	0794.001	DIODE SI 1N4001 100V 1A	1	
D7	0794.001	DIODE SI 1N4001 100V 1A	1	
D8	0794.001	DIODE SI 1N4001 100V 1A	1	
D9	0790.050	DIODE SI SB 3A 40V DO201	1	
D10	0796.000	DIODE SI BAS16 SOT23	1	
D11	0796.001	DIODE SI BAV99 SOT23	1	
D12	0796.000	DIODE SI BAS16 SOT23	1	
D13	0796.000	DIODE SI BAS16 SOT23	1	
D14	0796.001	DIODE SI BAV99 SOT23	1	
D15	0796.000	DIODE SI BAS16 SOT23	1	
D16	0796.000	DIODE SI BAS16 SOT23	1	
D17	0796.001	DIODE SI BAV99 SOT23	1	
D18	0796.000	DIODE SI BAS16 SOT23	1	
D19	0796.000	DIODE SI BAS16 SOT23	1	
D20	0796.000	DIODE SI BAS16 SOT23	1	
D21	0796.000	DIODE SI BAS16 SOT23	1	
FS1	0815.252	FUSE 250MA T 20X5MMO HBC	1	
FS2	0815.503	FUSE 250MA F 63VAC SMD	1	
FS3	0815.503	FUSE 250MA F 63VAC SMD	1	
FS4	0815.503	FUSE 250MA F 63VAC SMD	1	
FS5	0815.503	FUSE 250MA F 63VAC SMD	1	
HS1	0294.071	ADELAIDE HEATSINK	1	
IC1	0701.146	IC 1145 RGB ENC 24P SOIC	1	
IC2	0294.031	IC KBD CNTRLR [0708053]	1	
IC3	0764.145	IC 74LS145 TTL 16P SOIC	1	
IC4	0764.145	IC 74LS145 TTL 16P SOIC	1	
IC5	0708.584	IC 8583 RTC RAM 8P SOIC	1	
IC6	0704.129	IC DRAM 256Kx16 80nS ZIP	1	
IC7	0764.366	IC 74LS366 TTL 16P SOIC	1	
IC8	0762.014	IC 74HCT14 CMOS 14P SOIC	1	
IC9	0764.241	IC 74LS241 TTL 20P SOIC	1	
IC10	0771.386	IC LM386 AUDIO AMP 8PSOIC	1	
IC11	0704.129	IC DRAM 256Kx16 80nS ZIP	1	
IC12	0702.401	IC DS2400 ID 3W SIL 0.1	1	
IC13	0294.030	IC ARM250 160P PQFP	1	
IC14	0762.574	IC 74HCT574 CMOS 20P SOIC	1	
IC15	0762.574	IC 74HCT574 CMOS 20P SOIC	1	
IC16	0735.489	IC 1489A RS232 RX 14SOIC	1	

ITEM	PART No.	DESCRIPTION	QTY	Remarks
R55	0523.201	RES 200R SMD 5% 0W10 0805	1	
R57	0522.246	RES 301R SMD 1% 0W25 1206	1	
R58	0522.246	RES 301R SMD 1% 0W25 1206	1	
R59	0522.246	RES 301R SMD 1% 0W25 1206	1	
R60	0523.181	RES 180R SMD 5% 0W10 0805	1	
R61	0523.470	RES 47R SMD 5% 0W10 0805	1	
R62	0523.103	RES 10K SMD 5% 0W10 0805	1	
R63	0523.221	RES 220R SMD 5% 0W10 0805	1	
R64	0523.103	RES 10K SMD 5% 0W10 0805	1	
R65	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R66	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R68	0523.339	RES 3R3 SMD 5% 0W10 0805	1	
R69	0523.100	RES 10R SMD 5% 0W10 0805	1	
R70	0523.103	RES 10K SMD 5% 0W10 0805	1	
R71	0523.331	RES 330R SMD 5% 0W10 0805	1	
R72	0523.331	RES 330R SMD 5% 0W10 0805	1	
R73	0523.181	RES 180R SMD 5% 0W10 0805	1	
R74	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R75	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R77	0523.221	RES 220R SMD 5% 0W10 0805	1	
R78	0523.271	RES 270R SMD 5% 0W10 0805	1	
R79	0523.103	RES 10K SMD 5% 0W10 0805	1	
R80	0523.271	RES 270R SMD 5% 0W10 0805	1	
R81	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R82	0523.331	RES 330R SMD 5% 0W10 0805	1	
R83	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R84	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R85	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R86	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R87	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R88	0523.102	RES 1K0 SMD 5% 0W10 0805	1	
R89	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R90	0523.122	RES 1K2 SMD 5% 0W10 0805	1	
R91	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R92	0523.122	RES 1K2 SMD 5% 0W10 0805	1	
R94	0523.104	RES 100K SMD 5% 0W10 0805	1	
R95	0523.101	RES 100R SMD 5% 0W10 0805	1	
R96	0523.223	RES 22K SMD 5% 0W10 0805	1	
R97	0523.220	RES 22R SMD 5% 0W10 0805	1	
R98	0523.104	RES 100K SMD 5% 0W10 0805	1	
R99	0523.104	RES 100K SMD 5% 0W10 0805	1	
R100	0523.104	RES 100K SMD 5% 0W10 0805	1	
R101	0523.104	RES 100K SMD 5% 0W10 0805	1	
R102	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R104	0523.105	RES 1M0 SMD 5% 0W10 0805	1	
R106	0523.104	RES 100K SMD 5% 0W10 0805	1	
R107	0523.104	RES 100K SMD 5% 0W10 0805	1	
R108	0523.103	RES 10K SMD 5% 0W10 0805	1	
R109	0523.104	RES 100K SMD 5% 0W10 0805	1	
R110	0523.470	RES 47R SMD 5% 0W10 0805	1	
R111	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R112	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R113	0523.220	RES 22R SMD 5% 0W10 0805	1	
R114	0523.331	RES 330R SMD 5% 0W10 0805	1	
R115	0523.680	RES 68R SMD 5% 0W10 0805	1	
R116	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R117	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R118	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R119	0523.103	RES 10K SMD 5% 0W10 0805	1	
R120	0523.330	RES 33R SMD 5% 0W10 0805	1	
R121	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R122	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R123	0523.472	RES 4K7 SMD 5% 0W10 0805	1	

ITEM	PART No.	DESCRIPTION	QTY	Remarks
R124	0523.680	RES 68R SMD 5% 0W10 0805	1	
R125	0523.104	RES 100K SMD 5% 0W10 0805	1	
R126	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R127	0522.380	RES 6K81 SMD 1% 0W25 1206	1	
R128	0522.425	RES 18K2 SMD 1% 0W25 1206	1	
R129	0523.122	RES 1K2 SMD 5% 0W10 0805	1	
R130	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R131	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R132	0523.560	RES 56R SMD 5% 0W10 0805	1	
R133	0523.560	RES 56R SMD 5% 0W10 0805	1	
R134	0523.560	RES 56R SMD 5% 0W10 0805	1	
R135	0523.331	RES 330R SMD 5% 0W10 0805	1	
R136	0523.103	RES 10K SMD 5% 0W10 0805	1	
R137	0523.560	RES 56R SMD 5% 0W10 0805	1	
R138				NOT FITTED
R139	0523.102	RES 1K0 SMD 5% 0W10 0805	1	
R140				NOT FITTED
R141				NOT FITTED
R142	0523.102	RES 1K0 SMD 5% 0W10 0805	1	
R143	0523.102	RES 1K0 SMD 5% 0W10 0805	1	
R144	0523.102	RES 1K0 SMD 5% 0W10 0805	1	
R145	0523.102	RES 1K0 SMD 5% 0W10 0805	1	
R210	0523.182	RES 1K8 SMD 5% 0W10 0805	1	
R211	0523.332	RES 3K3 SMD 5% 0W10 0805	1	
R212	0523.332	RES 3K3 SMD 5% 0W10 0805	1	
R213	0523.222	RES 2K2 SMD 5% 0W10 0805	1	
R214	0523.103	RES 10K SMD 5% 0W10 0805	1	
R215	0523.000	RES ZEROR SMD 0W10 0805	1	
R217	0523.330	RES 33R SMD 5% 0W10 0805	1	
R218	0523.470	RES 47R SMD 5% 0W10 0805	1	
R219	0523.680	RES 68R SMD 5% 0W10 0805	1	
R220	0523.470	RES 47R SMD 5% 0W10 0805	1	
R221	0523.330	RES 33R SMD 5% 0W10 0805	1	
R222	0523.680	RES 68R SMD 5% 0W10 0805	1	
R223	0523.221	RES 220R SMD 5% 0W10 0805	1	
R224	0523.000	RES ZEROR SMD 0W10 0805	1	
R225	0523.330	RES 33R SMD 5% 0W10 0805	1	
R226	0523.330	RES 33R SMD 5% 0W10 0805	1	
R227	0523.330	RES 33R SMD 5% 0W10 0805	1	
R228	0523.330	RES 33R SMD 5% 0W10 0805	1	
RP1	0577.103	RESNET 10KX15 5% 16PSOIC	1	
RP2	0576.680	RESNET 68RX8 5% 16P SOIC	1	
RP3	0577.473	RESNET 47KX15 5% 16PSOIC	1	
RP4	0576.680	RESNET 68RX8 5% 16P SOIC	1	
RP5	0576.680	RESNET 68RX8 5% 16P SOIC	1	
RP6	0576.680	RESNET 68RX8 5% 16P SOIC	1	
RP7	0576.680	RESNET 68RX8 5% 16P SOIC	1	
RP8	0576.330	RESNET 33RX8 5% 16P SOIC	1	
RP9	0576.330	RESNET 33RX8 5% 16P SOIC	1	
RP10	0576.472	RESNET 4K7X8 5% 16P SOIC	1	
RP11	0576.680	RESNET 68RX8 5% 16P SOIC	1	
SK1	0800.995	CONRD 15WSKT RA HD+RFI+L	1	
SK2	0801.202	CONR 20W FLEX PCB	1	
SK3	0801.202	CONR 20W FLEX PCB	1	
SK4	0800.644	CONR 3.5MM RA PCB JKSKT	1	
SK5	0800.487	CONR 17W SKT HSNG .1 PCB	1	
SK6	0800.925	CONR 9W SKT M/DIN RA RFI	1	
SK7	0800.486	CONR 5W SKT HSNG 0.1 PCB	1	
SK8	0800.486	CONR 5W SKT HSNG 0.1 PCB	1	
SK9	0800.487	CONR 17W SKT HSNG .1 PCB	1	
SK10	0898.005	CONRD 25W SKT RAPCB+RFI+L	1	
SW1	0805.704	SW 2P MOM CO P/B RA PCB	1	
SW2	0805.910	SW DPST 250V 2A ROC SNP	1	

A3020 2M HD final assembly assembly parts list, issue 4

ITEM	PART No.	DESCRIPTION	QTY	Remarks
	0094,504/A	Final Assembly Drg.		1 Per Batch
	0194,015	Mains Cable Assy	1	
	0192,082	Speaker Cable Assembly	1	
	0194,078	Earth Cable Assembly	1	
	0194,500	E (2M) Main PCB Assy	1	
	0180,011	Keyboard (UK) Variant	1	
	0494,542	E Name/LED Label	1	
	0494,543	E Base Label	1	(AB)
	0494,546	A3020 Base Label		(Callfind)
	0494,559	A3020 Base Label		(Welwyn)
	0494,544	E Mains Label	1	
	0494,046	PSU Label	1	
	0294,080	Battery Insulation Pad	1	
	0294,560	E Lower Metal	1	
	0294,061	Upper Metal	1	
	0294,062	User Access Lid	1	
	0294,563	E Screened Case Upper	1	
	0294,561	E Plastic Case Lower	1	
	0294,564	E Rear Aperture Cover	1	
	0294,069	RAM Upgrade Access Lid	1	
	0294,070	Rear EMC Blanking Gasket	1	
	0294,073	PCB Insulation Sheet	1	
	0194,075	Disc Drive Cable Assy	1	
	0194,076	Disc Drive Pwr Cable Assy	1	
	0194,565	E Hard Disc Cable Assy	1	
	0800,996	Conrd 4-40UNC ScwLk 5L	2	
	0800,997	Wshr 4-40UNC Int Sprl Snp	8	
	0805,705	Cap 5mmD Plstc Grey	1	
	0880,024	Grmt Cbl Rnd 7,4Dx4T Blk	1	
	0882,120	Scw M3x10 Skt Button Hd	2	
	0882,121	Scw M3x6 Pan HD Posi	8	
	0882,129	Scw M3x6 Skt Cap Hd	1	
	0882,717	Scw 3x6mm Pan Posi PLST45	1	
	0882,902	Nut M3 Stl Full Z/Pas	2	
	0890,013	Foot S/A Rubr 8Dx2.5Hmm	2	
	0940,008	Adh Hot Melt Plst UL94V-0	A/R	
	0882,972	Wshr M3 Sprl lt Stl	2	
	0882,718	Scw 3x8mm Pan Posi PLST45	4	
	0912,024	Floppy Drive 1/2MB 3.5	1	
	0912,025	Wini Drive 60MB 2.5 IDE	1	

A3020 2M main PCB assembly parts list, issue 2

ITEM	PART No.	DESCRIPTION	QTY	Remarks
1	0294,500	BARE PCB	1	
2	0194,500/A	PCB ASSEMBLY DWG	1	PER BATCH
3	0194,500/C	PCB CIRCUIT DIAGRAM	1	PER BATCH
6	0294,074	PSU INSULATION SHEET	1	
9	0800,070	CONR 2W SHUNT 0.1	5	LK6(x2),14,31 32
10	0800,070	CONR 2W SHUNT 0.1	1	LK2 (See Note on Sht 13)
11	0870,420	WIRE 22SWG CPR TIN	A/R	
12	0885,310	WSHR INS MTG XTAL HC49	1	Use with X5
13	0884,038	RIVET PLST SNAP 6.35 THK	2	Use with Items 1 and 6
14	0884,042	RIVET POP DOME 3,2D & THK	2	Use with Items 1 and HS1
18	0902,004	LABEL SERIAL PCB 40x10mm	1	
21	0815,910	FUSE CLIP 5MMD SE PCB	2	FS1
22	0800,197	SKT STRIP 3/0.1 TURN	1	IC12
23	0800,102	SKT IC 42/0.6 SUPA	1	IC17
24	0800,102	SKT IC 42/0.6 SUPA	1	IC18
25	0800,199	SKT STRIP 14/0.1 LP	2	IC33
26	0800,199	SKT STRIP 14/0.1 LP	2	IC34
27	0800,199	SKT STRIP 14/0.1 LP	2	IC35
28	0800,199	SKT STRIP 14/0.1 LP	2	IC36
BT2	0817,014	BAT NI 1V2 280MAH VT PCB	1	
C1	0635,100	CPCTR 10U ALEC 16V RAD	1	
C2	0635,230	CPCTR 220U ALEC 16V RAD	1	
C3	0692,473	CPCTR 47N CML 20% 805	1	
C4				NOT FITTED
C5				NOT FITTED
C6	0635,230	CPCTR 220U ALEC 16V RAD	1	
C7				NOT FITTED
C8	0692,104	CPCTR 100N CML 20% 805	1	
C9	0635,100	CPCTR 10U ALEC 16V RAD	1	
C10	0693,336	CPCTR 33N DCPLR SMD 805	1	
C11	0692,104	CPCTR 100N CML 20% 805	1	
C12	0693,336	CPCTR 33N DCPLR SMD 805	1	
C13	0693,336	CPCTR 33N DCPLR SMD 805	1	
C14	0635,470	CPCTR 47U ALEC 16V RAD	1	
C15	0650,472	CPCTR MPSTR 4N7 63V 10%	1	
C16	0635,470	CPCTR 47U ALEC 16V RAD	1	
C17	0692,104	CPCTR 100N CML 20% 805	1	
C24	0693,336	CPCTR 33N DCPLR SMD 805	1	
C28	0635,470	CPCTR 47U ALEC 16V RAD	1	
C29	0693,336	CPCTR 33N DCPLR SMD 805	1	
C37	0693,336	CPCTR 33N DCPLR SMD 805	1	
C39	0635,230	CPCTR 220U ALEC 16V RAD	1	
C40	0693,336	CPCTR 33N DCPLR SMD 805	1	
C41	0691,102	CPCTR 1N CML 10% 805	1	
C42	0691,102	CPCTR 1N CML 10% 805	1	
C43	0693,336	CPCTR 33N DCPLR SMD 805	1	
C49	0635,230	CPCTR 220U ALEC 16V RAD	1	
C50	0693,336	CPCTR 33N DCPLR SMD 805	1	
C51	0691,102	CPCTR 1N CML 10% 805	1	
C52	0691,102	CPCTR 1N CML 10% 805	1	
C53	0691,102	CPCTR 1N CML 10% 805	1	
C54	0690,820	CPCTR 82P CML 2% 805	1	
C56	0690,820	CPCTR 82P CML 2% 805	1	
C58	0690,820	CPCTR 82P CML 2% 805	1	
C59	0610,010	CPCTR 10U TANT 10V 20% 5P	1	
C60	0642,103	CPCTR 100U ALEC 25V RAD	1	
C61	0691,102	CPCTR 1N CML 10% 805	1	
C62	0647,002	CPCTR 47U ALEC 16V SMD	1	

ITEM	PART No.	DESCRIPTION	QTY	Remarks
C302	0693.107	CPCTR 100N DCPLR SMD 805	1	
C303	0693.107	CPCTR 100N DCPLR SMD 805	1	
C304	0690.120	CPCTR 12P CML 2% 805	1	
D1	0794.001	DIODE SI 1N4001 100V 1A	1	
D2	0794.001	DIODE SI 1N4001 100V 1A	1	
D3	0794.001	DIODE SI 1N4001 100V 1A	1	
D4	0794.001	DIODE SI 1N4001 100V 1A	1	
D5	0794.001	DIODE SI 1N4001 100V 1A	1	
D6	0794.001	DIODE SI 1N4001 100V 1A	1	
D7	0794.001	DIODE SI 1N4001 100V 1A	1	
D8	0794.001	DIODE SI 1N4001 100V 1A	1	
D10	0796.000	DIODE SI BAS16 SOT23	1	
D11	0796.001	DIODE SI BAV99 SOT23	1	
D12	0796.000	DIODE SI BAS16 SOT23	1	
D13	0796.000	DIODE SI BAS16 SOT23	1	
D14	0796.001	DIODE SI BAV99 SOT23	1	
D15	0796.000	DIODE SI BAS16 SOT23	1	
D16	0796.000	DIODE SI BAS16 SOT23	1	
D17	0796.001	DIODE SI BAV99 SOT23	1	
D18	0796.000	DIODE SI BAS16 SOT23	1	
D19	0796.000	DIODE SI BAS16 SOT23	1	
D20	0796.000	DIODE SI BAS16 SOT23	1	
D21	0794.001	DIODE SI 1N4001 100V 1A	1	
D22	0790.050	DIODE SI SB 3A 40V DO201	1	
FS1	0815.252	FUSE 250MA T 20X5MMD HBC	1	
FS2	0815.503	FUSE 250MA F 63VAC SMD	1	
FS3	0815.503	FUSE 250MA F 63VAC SMD	1	
FS4	0815.306	FUSE 50/63MA LBC AX 9X3.2	1	
FS5	0815.503	FUSE 250MA F 63VAC SMD	1	
HS1	0294.071	ADELAIDE HEATSINK	1	
IC1	0758.032	IC 74AC32 CMOS 14P SOIC	1	
IC2	0294.031	IC KBD CNTRLR (0708.053)	1	
IC3	0764.145	IC 74LS145 TTL 16P SOIC	1	
IC4	0764.145	IC 74LS145 TTL 16P SOIC	1	
IC5	0708.584	IC 8583 RTC RAM 8P SOIC	1	
IC7	0764.366	IC 74LS366 TTL 16P SOIC	1	
IC8	0762.014	IC 74HCT14 CMOS 14P SOIC	1	
IC9	0764.241	IC 74LS241 TTL 20P SOIC	1	
IC10	0771.386	IC LM386 AUDIO AMP 8PSOIC	1	
IC12	0702.401	IC DS2400 ID 3W SIL 0.1	1	
IC13	0294.030	IC ARM250 160P PQFP	1	
IC16	0735.489	IC 1489A RS232 RX 14SOIC	1	
IC17	0296.061	RISC OS GREEN (X16) ROM1	1	
IC18	0296.062	RISC OS GREEN (X16) ROM2	1	
IC19	0735.488	IC 1488 RS232 DRVR 14SOIC	1	
IC20	0761.138	IC 74HC138 CMOS 16P SOIC	1	
IC21	0704.128	IC DRAM 256KX16 80NS SOJ	1	
IC22	0704.128	IC DRAM 256KX16 80NS SOJ	1	
IC23	0735.489	IC 1489A RS232 RX 14SOIC	1	
IC24	0701.711	IC 82C711 UCNTRLR 100QFP	1	
IC26	0762.014	IC 74HCT14 CMOS 14P SOIC	1	
IC30	0758.139	IC 74AC139 CMOS 16P SOIC	1	
IC31	0704.128	IC DRAM 256KX16 80NS SOJ	1	
IC32	0704.128	IC DRAM 256KX16 80NS SOJ	1	
IC33				NOT FITTED
IC34				NOT FITTED
IC35				NOT FITTED
IC36				NOT FITTED
IC37	0761.075	IC 74HC75 CMOS 16P SOIC	1	
IC38	0778.107	VOLT REG L4974 ADJ 3A5	1	
IC45	0762.573	IC 74HCT573 CMOS 20P SOIC	1	
IC46	0761.573	IC 74HC573 CMOS 20P SOIC	1	
IM2	0194.007	AUDIO HYBRID 17P	1	

ITEM	PART No.	DESCRIPTION	QTY	Remarks
L1	0194.512	TRNSFMR 25VA 240VAC 2R FX	1	
L2	0860.503	IND CHK 1A 80R@100MHZ SMD	1	
L3	0860.503	IND CHK 1A 80R@100MHZ SMD	1	
L4	0860.210	IND 150UH 20% 5A TOROID P	1	
L6	0860.503	IND CHK 1A 80R@100MHZ SMD	1	
L10	0860.012	CHOKE RF 2U2H AX Q30	1	
L11	0860.503	IND CHK 1A 80R@100MHZ SMD	1	
L12	0860.005	CHOKE RF 33UH AX Q45	1	
L13	0860.503	IND CHK 1A 80R@100MHZ SMD	1	
L14	0860.503	IND CHK 1A 80R@100MHZ SMD	1	
L15	0860.503	IND CHK 1A 80R@100MHZ SMD	1	
L16	0860.503	IND CHK 1A 80R@100MHZ SMD	1	
L17	0860.503	IND CHK 1A 80R@100MHZ SMD	1	
L18	0860.503	IND CHK 1A 80R@100MHZ SMD	1	
LK1	0870.420	WIRE 22SWG CPR TIN	1	See Note on Sht 13
LK2	0800.050	CONR 2W WAFR 0.1 ST PCB	1	
LK3	0800.450	CONR 6W WAFR 0.1 ST PCB	1	
LK4				NOT FITTED
LK5				NOT FITTED
LK6	0800.876	CONR 8W WAFR 0.1 2ROW ST	1	
LK7				NOT FITTED
LK8				NOT FITTED
LK9				NOT FITTED
LK10				NOT FITTED
LK11				NOT FITTED
LK12				NOT FITTED
LK13				NOT FITTED
LK14	0800.051	CONR 3W WAFR 0.1 ST PCB	1	
LK15				NOT FITTED
LK16	0800.450	CONR 6W WAFR 0.1 ST PCB	1	
LK18	0800.050	CONR 2W WAFR 0.1 ST PCB	1	
LK19	0800.458	CONR 2W WAFR 0.1 ST LK	1	
LK30				NOT FITTED
LK31	0800.051	CONR 3W WAFR 0.1 ST PCB	1	
LK32	0800.051	CONR 3W WAFR 0.1 ST PCB	1	
PL1	0800.235	CONR 2W WAFR ST 0.312 LK	1	
PL2	0800.203	FSTN TAB 6.3MMX0.8 ST PCB	1	
PL3	0800.203	FSTN TAB 6.3MMX0.8 ST PCB	1	
PL4	0800.203	FSTN TAB 6.3MMX0.8 ST PCB	1	
PL5	0800.932	CONR 4W PLG PCB ST DISC P	1	
PL8	0898.003	CONRD 9WPLG RA PCB+RFI+L	1	
PL9	0898.002	CONR 34W BOX IDC LP ST	1	
PL10	0804.004	CONR 16W STAKE 2ROW 2mmP	2	
Q1	0778.212	VOLT REG 78L12 12V 8PSOIC	1	
Q3	0784.849	TRANS BC849C NPN SOT23	1	
Q4	0784.906	TRANS SM3906 PNP SOT23	1	
Q7	0784.906	TRANS SM3906 PNP SOT23	1	
Q9	0784.906	TRANS SM3906 PNP SOT23	1	
Q10	0784.906	TRANS SM3906 PNP SOT23	1	
R1	0523.223	RES 22K SMD 5% 0W10 0805	1	
R2	0523.101	RES 100R SMD 5% 0W10 0805	1	
R3	0523.183	RES 18K SMD 5% 0W10 0805	1	
R10				NOT FITTED
R16	0523.222	RES 2K2 SMD 5% 0W10 0805	1	
R17	0523.222	RES 2K2 SMD 5% 0W10 0805	1	
R18	0523.122	RES 1K2 SMD 5% 0W10 0805	1	
R22	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R23	0523.152	RES 1K5 SMD 5% 0W10 0805	1	
R24	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R25	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R26	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R27	0523.680	RES 68R SMD 5% 0W10 0805	1	

A3020/A4000 Econet PCB assembly parts list, issue 1

ITEM	PART No.	DESCRIPTION	QTY	Remarks
R609	0523.330	RES 33R SMD 5% 0W10 0805	1	
R610	0523.330	RES 33R SMD 5% 0W10 0805	1	
R611	0523.330	RES 33R SMD 5% 0W10 0805	1	
R612	0523.330	RES 33R SMD 5% 0W10 0805	1	
R613	0523.330	RES 33R SMD 5% 0W10 0805	1	
R614	0523.330	RES 33R SMD 5% 0W10 0805	1	
R615	0523.330	RES 33R SMD 5% 0W10 0805	1	
R616	0523.330	RES 33R SMD 5% 0W10 0805	1	
R617	0523.330	RES 33R SMD 5% 0W10 0805	1	
R618	0523.330	RES 33R SMD 5% 0W10 0805	1	
R619	0523.330	RES 33R SMD 5% 0W10 0805	1	
R620	0523.330	RES 33R SMD 5% 0W10 0805	1	
R621	0523.330	RES 33R SMD 5% 0W10 0805	1	
R622	0523.330	RES 33R SMD 5% 0W10 0805	1	
R623	0523.330	RES 33R SMD 5% 0W10 0805	1	
R624	0523.330	RES 33R SMD 5% 0W10 0805	1	
R625	0523.330	RES 33R SMD 5% 0W10 0805	1	
R626	0523.330	RES 33R SMD 5% 0W10 0805	1	
R627	0523.330	RES 33R SMD 5% 0W10 0805	1	
R628	0523.330	RES 33R SMD 5% 0W10 0805	1	
R629	0523.330	RES 33R SMD 5% 0W10 0805	1	
R630	0523.330	RES 33R SMD 5% 0W10 0805	1	
R631	0523.330	RES 33R SMD 5% 0W10 0805	1	
R632	0523.330	RES 33R SMD 5% 0W10 0805	1	
R633	0523.330	RES 33R SMD 5% 0W10 0805	1	
R634	0523.330	RES 33R SMD 5% 0W10 0805	1	
RP2	0576.680	RESNET 68RX8 5% 16P SOIC	1	
RP3	0577.473	RESNET 47KX15 5% 16PSOIC	1	
RP4	0576.680	RESNET 68RX8 5% 16P SOIC	1	
RP5	0576.680	RESNET 68RX8 5% 16P SOIC	1	
RP6	0576.680	RESNET 68RX8 5% 16P SOIC	1	
RP7	0576.680	RESNET 68RX8 5% 16P SOIC	1	
RP8	0576.330	RESNET 33RX8 5% 16P SOIC	1	
RP9	0576.330	RESNET 33RX8 5% 16P SOIC	1	
SK1	0800.995	CONRD 15WSKT RA HD+RFI+L	1	
SK2	0801.202	CONR 20W FLEX PCB	1	
SK3	0801.202	CONR 20W FLEX PCB	1	
SK4	0800.644	CONR 3.5MM RA PCB JKSKT	1	
SK5	0800.487	CONR 17W SKT HSNG .1 PCB	1	
SK6	0800.925	CONR 9W SKT M/DIN RA RFI	1	
SK7	0800.486	CONR 5W SKT HSNG 0.1 PCB	1	
SK8	0800.486	CONR 5W SKT HSNG 0.1 PCB	1	
SK9	0800.487	CONR 17W SKT HSNG .1 PCB	1	
SK10	0898.005	CONRD 25W SKT RAPCB+RFI+L	1	
SK11	0800.486	CONR 5W SKT HSNG 0.1 PCB	1	
SK12	0800.486	CONR 5W SKT HSNG 0.1 PCB	1	
SK13	0800.487	CONR 17W SKT HSNG .1 PCB	1	
SK15	0800.490	CONR 12W SKT HSNG .1 PCB	1	
SK16	0800.489	CONR 15W SKT HSNG .1 PCB	1	
SK18	0800.270	CONRD 15W SKT RAPCB+RFI+L	1	
SK19	0800.491	CONR 7W SKT HSNG 0.1 PCB	1	
SW1	0805.704	SW 2P MOM CO P/B RA PCB	1	
SW2	0805.910	SW DPST 250V 2A ROC SNP	1	
TP1	0800.060	CONR 1W WAFR 0.1 ST PCB	1	
TP2	0800.060	CONR 1W WAFR 0.1 ST PCB	1	
TP3	0800.060	CONR 1W WAFR 0.1 ST PCB	1	
X2	0821.327	XTAL 32.768KHZ CC 0.05P	1	
X4	0820.721	XTAL OSC 72MHZ CMOS DIL	1	
X5	0820.253	XTAL 25.175MHZ HC49 5.08H	1	
X7	0820.240	XTAL 24.00MHZ HC18/V CAN	1	
X100				NOT FITTED

ITEM	PART No.	DESCRIPTION	QTY	Remarks
1	0294.005	BARE PCB		1
2	0194.005/A	PCB ASSEMBLY DWG	.	1 PER BATCH
3	0194.005/C	PCB CIRCUIT DIAGRAM		1 PER BATCH
18	0902.004	LABEL SERIAL PCB 40x10mm	1	
C1	0691.222	CPCTR 2N2 CML 10% 805	1	
C2	0692.103	CPCTR 10N CML 20% 805	1	
C3	0681.100	CPCTR 47U TANT SMD	1	
C4	0681.101	CPCTR 10U TANT SMD 16V	1	
C5	0681.100	CPCTR 47U TANT SMD	1	
C6	0692.333	CPCTR 33N CML 20% 805	1	
C7	0692.333	CPCTR 33N CML 20% 805	1	
C8	0692.333	CPCTR 33N CML 20% 805	1	
C9	0692.333	CPCTR 33N CML 20% 805	1	
C10	0692.333	CPCTR 33N CML 20% 805	1	
C11	0692.333	CPCTR 33N CML 20% 805	1	
C12	0692.333	CPCTR 33N CML 20% 805	1	
C13	0692.333	CPCTR 33N CML 20% 805	1	
IC1	0706.854	IC 68854 ADLC NMOS 2MHZ	1	
IC2	0761.132	IC 74HC132 CMOS 14P SOIC	1	
IC3	0764.123	IC 74LS123 TTL 16P SOIC	1	
IC4				NOT FITTED
IC5	0771.319	IC LM319 DUAL COMP 14SOIC	1	
IC6	0771.319	IC LM319 DUAL COMP 14SOIC	1	
IC7	0732.635	IC 26LS30 RS422/3 DR SOIC	1	
LK1				NOT FITTED
LK2				NOT FITTED
LK3				NOT FITTED
LK4				NOT FITTED
PL1	0800.478	CONR 17W WAFR 0.1 ST 12M	1	
PL2	0800.477	CONR 5W WAFR .1 ST 12MM	1	
R1	0523.102	RES 1K0 SMD 5% 0W10 0805	1	
R2	0523.393	RES 39K SMD 5% 0W10 0805	1	
R3	0523.102	RES 1K0 SMD 5% 0W10 0805	1	
R4	0523.102	RES 1K0 SMD 5% 0W10 0805	1	
R5	0523.224	RES 220K SMD 5% 0W10 0805	1	
R6	0523.155	RES 1M5 SMD 5% 0W10 0805	1	
R7	0523.155	RES 1M5 SMD 5% 0W10 0805	1	
R8	0524.563	RES 56K SMD 2% 0W1 0805	1	
R9	0524.563	RES 56K SMD 2% 0W1 0805	1	
R10	0523.155	RES 1M5 SMD 5% 0W10 0805	1	
R11	0524.563	RES 56K SMD 2% 0W1 0805	1	
R12	0524.563	RES 56K SMD 2% 0W1 0805	1	
R13	0524.104	RES 100K SMD 2% 0W1 0805	1	
R14	0524.104	RES 100K SMD 2% 0W1 0805	1	
R15	0524.104	RES 100K SMD 2% 0W1 0805	1	
R16	0524.104	RES 100K SMD 2% 0W1 0805	1	
R17	0524.103	RES 10K SMD 2% 0W1 0805	1	
R18	0524.103	RES 10K SMD 2% 0W1 0805	1	
R19	0524.103	RES 10K SMD 2% 0W1 0805	1	
R20	0524.103	RES 10K SMD 2% 0W1 0805	1	
R21	0524.152	RES 1K5 SMD 2% 0W1 0805	1	
R22	0524.102	RES 1K0 SMD 2% 0W1 0805	1	
R23	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R24	0523.472	RES 4K7 SMD 5% 0W10 0805	1	

Appendix A – Monitor adaptor cables

This appendix describes how to make adaptor cables for monitors not supplied with a 15-way VGA connector.

Adaptor type 1

The cable supplied with some Multiscan monitors is terminated at the computer end with a 9-way D-type plug. You need a standard 15-way plug to 9-way socket adaptor:

```
          | 15-way plug      | 9-way socket |
          | 1  Red  ---------------- 1       |
          | 2  Green --------------- 2       |
          | 3  Blue  --------------- 3       |
          | 4  ID2                           |
  5 10 15 | 5  OV (test)                     |  1 6
          | 6  Red rtn (0V) ----+---- 6      |
          | 7  Green rtn (0V)---|---- 7      |
          | 8  Blue rtn (0V) ---|---- 8      |
  1 6 11  | 9  +5V              |            |  5 9
          | 10 OV ----------+---------- 9    |
          | 11 ID0                           |
          | 12 ID1 (nc)                      |
          | 13 HSync --------------- 4       |
          | 14 VSync --------------- 5       |
          | 15 ID3 (nc)                      |
```
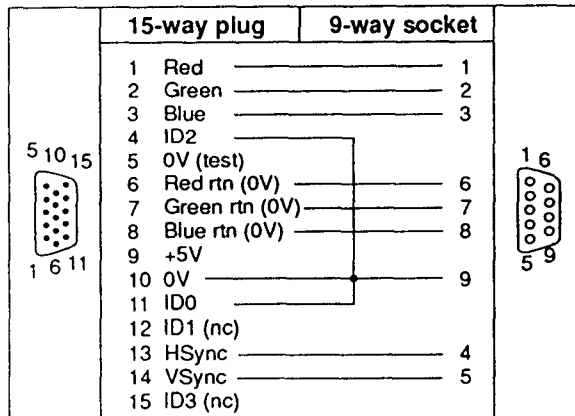
Note: The ID[0] to 0V connection will make the monitor type 3 modes available and the computer will generate separate sync signals.

Most Multiscan monitors are now being designed to be VGA-compatible and will work satisfactorily when driven with separate horizontal and vertical sync signals.

Adaptor type 2

The cable supplied with some Multiscan monitors requiring composite sync is terminated at the computer end with a 9 pin D-type plug. You need a 15-way plug to 9-way socket adaptor:

```
          | 15-way plug      | 9-way socket |
          | 1  Red  ---------------- 1       |
          | 2  Green --------------- 2       |
          | 3  Blue  --------------- 3       |
          | 4  ID2                           |
  5 10 15 | 5  OV (test)                     |  1 6
          | 6  Red rtn (0V) --------- 6      |
          | 7  Green rtn (0V)-------- 7      |
          | 8  Blue rtn (0V) -------- 8      |
          | 9  +5V                           |
  1 6 11  | 10 OV ------------------- 9      |  5 9
          | 11 ID0 (nc)                      |
          | 12 ID1 (nc)                      |
          | 13 HSync -------------- 4        |
          | 14 CSync -----------/ (nc) 5     |
          | 15 ID3 (nc)                      |
```
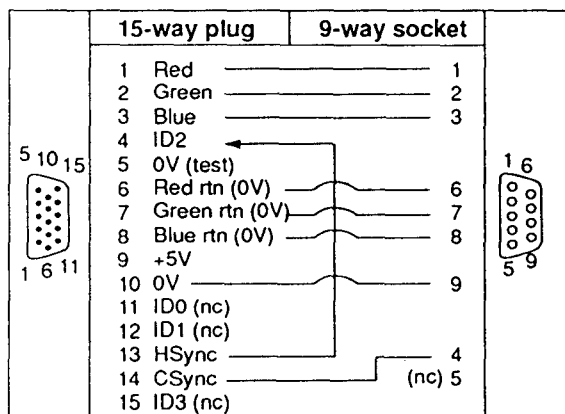
Note: The HSYNC to ID[2] connection will make the monitor type 1 modes available and the computer will generate a composite sync signal.

Adaptor type 3

The cable supplied with some TV-type monitors is terminated at the computer end with a 9 pin D-type plug. You need a 15-way plug to 9-way socket adaptor:

```
          | 15-way plug      | 9-way socket |
          | 1  Red  ---------------- 1       |
          | 2  Green --------------- 2       |
          | 3  Blue  --------------- 3       |
          | 4  ID2 (nc)                      |
  5 10 15 | 5  OV (test)                     |  1 6
          | 6  Red rtn (0V) --------- 6      |
          | 7  Green rtn (0V)-------- 7      |
          | 8  Blue rtn (0V) -------- 8      |
          | 9  +5V                           |
  1 6 11  | 10 OV ------------------- 9      |  5 9
          | 11 ID0  ◄                        |
          | 12 ID1 (nc)                      |
          | 13 HSync -----------/ 4          |
          | 14 CSync -------------- 5        |
          | 15 ID3 (nc)                      |
```
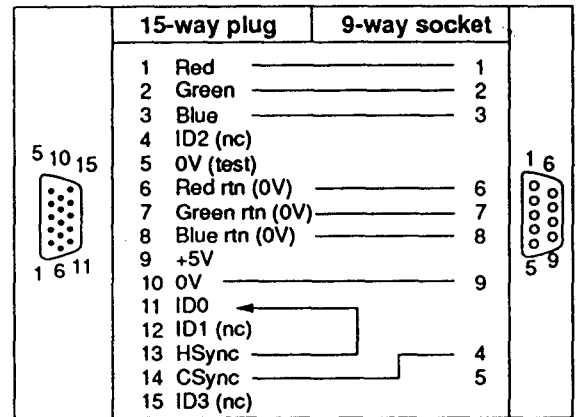
Note: The HSYNC to ID[0] connection will make the monitor type 0 modes available and the computer will generate a composite sync signal.

Cable type 4

You need to make this cable to use with televisions and TV-type monitors using a SCART input socket:

```
          | 15-way plug      | 20 pin SCART |
          | 1  Red  ---------------- 15      |
          | 2  Green --------------- 11      |
          | 3  Blue  --------------- 7       |
          | 4  ID2 (nc)                      |
          | 5  OV (test)                     |  20 19
          | 6  Red rtn (0V) --------- 13     |
  5 10 15 | 7  Green rtn (0V)-------- 9      |
          | 8  Blue rtn (0V) -------- 5      |
          |             75Ω                  |
          | 9  +5V ----[==]--------- 16      |
  1 6 11  | 10 OV ------------------- 17     |
          | 11 ID0  ◄--------------- 18      |
          | 12 ID1 -------------- 8          |
          | 13 HSync ----/                   |
          | 14 CSync -----[==]------ 20      |  2 1
          | 15 ID3 (nc)    220Ω              |
```

Optional stereo headphones jack

Centre ――――――――― 2
Tip ――――――――――― 6
Outer ―――――――――― 4

The 220Ω resistor results in a CSYNC signal of approximately 1V peak on pin 20 of the SCART connector. The 75Ω resistor results in a blanking signal of approximately 2.5V dc on pin 16 of the SCART connector.

Appendix B – Timing diagrams

Example read $\overline{PS1}$ 'Fast' IOC controlled operation

LA*	Address = &03344000
$\overline{PS1}$	
$\overline{PRE}$	
$\overline{IORQ}$	
$\overline{IOGT}$	
$\overline{BL}$	
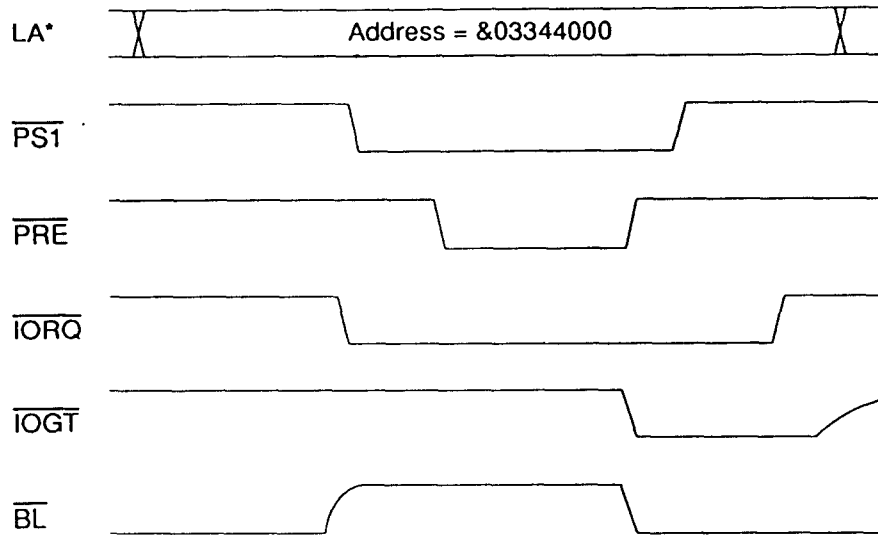
Example write $\overline{PS1}$ 'Fast' IOC controlled operation

LA*	Address = &03344000
$\overline{PS1}$	
$\overline{PWE}$	
$\overline{IORQ}$	
$\overline{IOGT}$	
$\overline{BL}$	
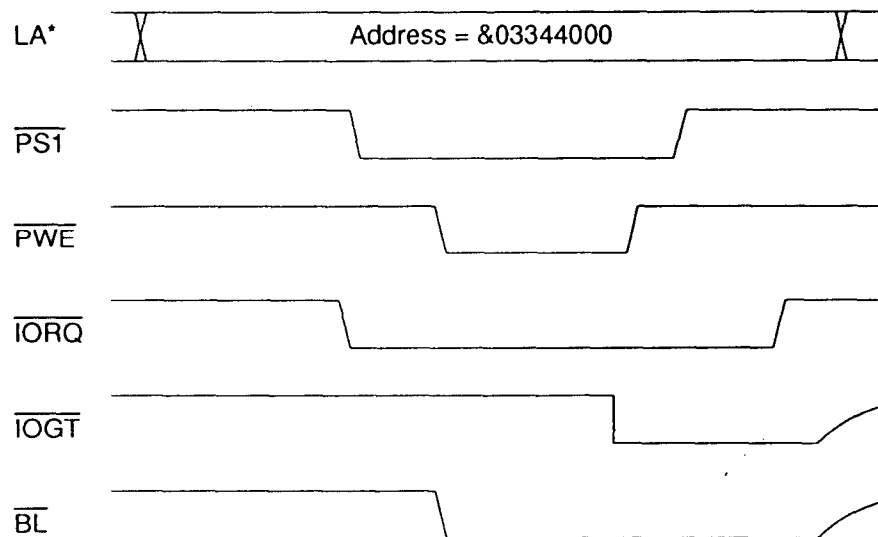
IOC and IOEB (both in ARM250)
generate BL and IOGT to create
a fixed 250ns read pulse – fast cycle

Example DMA read cycle of 82C711

LA* ——————X Address = &0302A000 X——————

TC

DACK

IOR

416ns

82ns

290ns
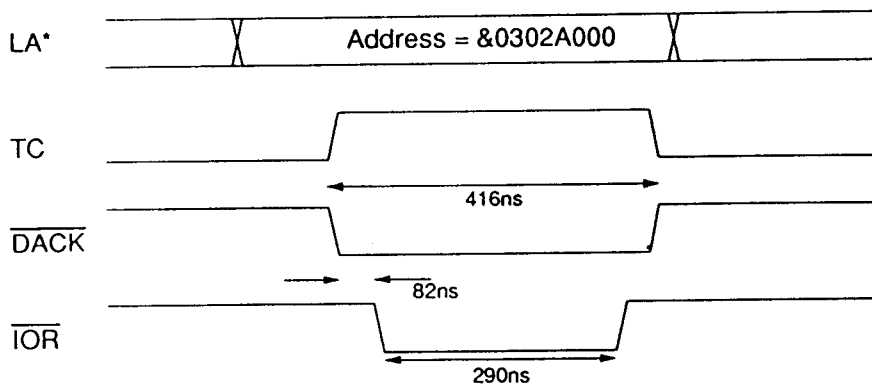
TC and DACK together tells the FDC
that this is the last byte of the DMA block

Example DMA write cycle to 82C711

LA* ——————X Address = &0302A000 X——————

TC

DACK

IOW

416ns

82ns

250ns
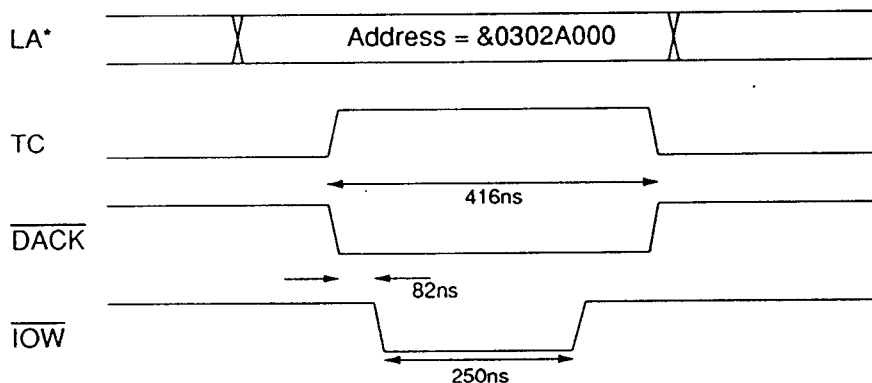
TC and DACK together tells the FDC
that this is the last byte of the transfer.

Note: TC, AEN, DACK, IOW, and IOR are generated
by a state machine clocked at the system clock rate (12MHz).

Appendix C – RAM chip signals

Base memory – A30X0, A4000
256K x 16 DRAM
40 pin 400mm SOJ

Left	Pin		Pin	Right
Vcc	1		40	Vss
I/O1	2		39	I/O16
I/O2	3		38	I/O15
I/O3	4		37	I/O14
I/O4	5		36	I/O13
Vcc	6		35	Vss
I/O5	7		34	I/O12
I/O6	8		33	I/O11
I/O7	9		32	I/O10
I/O8	10		31	I/O9
nc	11		30	nc
nc	12		29	LCAS*
WE*	13		28	UCAS*
RAS*	14		27	OE*
nc	15		26	A8
A0	16		25	A7
A1	17		24	A6
A2	18		23	A5
A3	19		22	A4
Vcc	20		21	Vss

Appendix D – Engineering drawings

This appendix contains the following schematics:

- Final assembly drawing
- Circuit diagrams for main PCB (common to all models).

ARM250 daughter card

Initial production of the Acorn A3010/A3020/A4000 used a main PCB fitted with a daughter card instead of the ARM250 IC. The daughter card carries a discrete component version of the ARM250. The two versions of the main PCB have different part numbers, although they are functionally the same. The majority of components are the same and have the same location and circuit reference.

Differences arise in clock generation and colour encoder COMPSYNC signal. Also, the battery was moved.

The daughter card is clocked by 36MHz and 24MHz oscillators, instead of the single 72MHz unit used to clock the ARM250. This avoids the use of an expensive HF divider on the daughter card. A counter and decoder to create the COMPSYNC signal have been added to the ARM250 main PCB. The daughter card design includes a PAL device which generates the COMPSYNC signal. A gate delay has been added to the ARM250 IORQ signal to match the typical performance seen in A3000 computers.

Reader's Comment Form

Acorn A3010/A3020/A4000 Technical Reference Manual (Issue1)

We would greatly appreciate your comments about this Manual, which will be taken into account for the next issue:

Did you find the information you wanted?

Do you like the way the information is presented?

General comments:

If there is not enough room for your comments, please continue overleaf

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Dept RC, Technical Publications
Acorn Computers Limited
645 Newmarket Road
Cambridge CB5 8PB
England

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Upgrade memory – A3010
256K x 16 DRAM
40 pin 475mm ZIP

I/O9	1		
		2	I/O10
I/O11	3		
		4	I/O12
Vss	5		
		6	I/O13
I/O14	7		
		8	I/O15
I/O16	9		
		10	Vss
Vcc	11		
		12	I/O1
I/O2	13		
		14	I/O3
I/O4	15		
		16	Vcc
I/O5	17		
		18	I/O6
I/O7	19		
		20	I/O8
nc	21		
		22	nc
WE*	23		
		24	RAS*
nc	25		
		26	A0
A1	27		
		28	A2
A3	29		
		30	Vcc
Vss	31		
		32	A4
A5	33		
		34	A6
A7	35		
		36	A8
OE*	37		
		38	UCAS*
LCAS*	39		
		40	nc
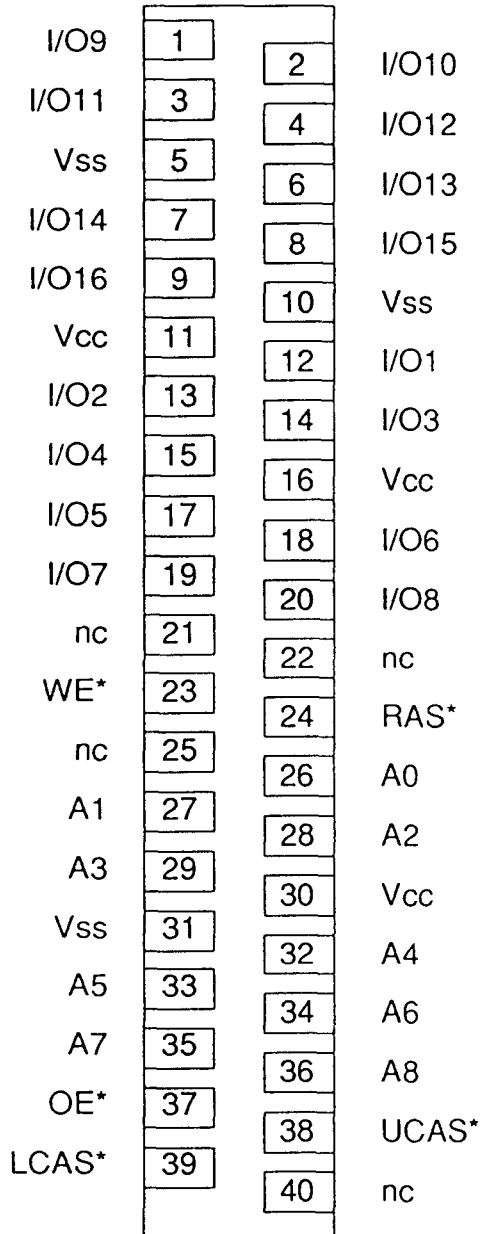
Upgrade memory – A3020, A4000
512K x 8 DRAM
28 pin 400mm ZIP

OE*	1		
		2	CAS*
I/O5	3		
		4	I/O6
I/O7	5		
		6	I/O8
Vss	7		
		8	Vcc
I/O1	9		
		10	I/O2
I/O3	11		
		12	I/O4
nc	13		
		14	WE*
RAS*	15		
		16	A9
A0	17		
		18	A1
A2	19		
		20	A3
Vcc	21		
		22	Vss
A4	23		
		24	A5
A6	25		
		26	A7
A8	27		
		28	nc
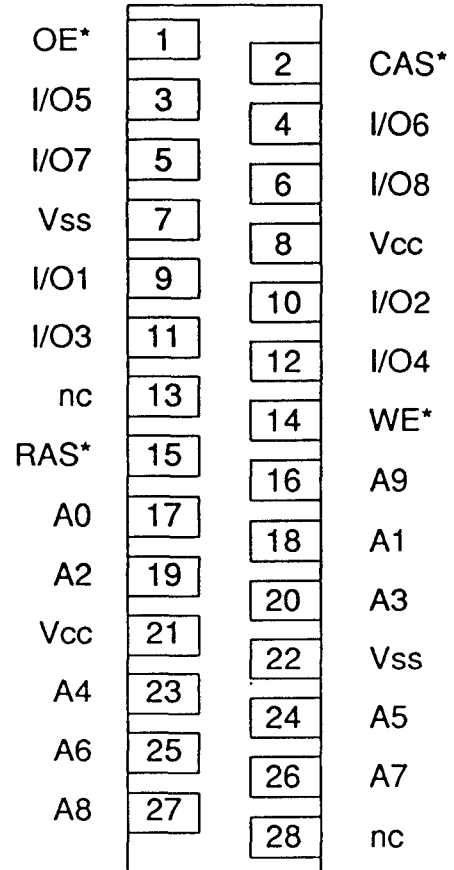
Example access in MS1 space

$\overline{MS1}$	
LA*, PR/nW	Address = &03004000
IORQ	
BL (read access)	
BL (write access)	
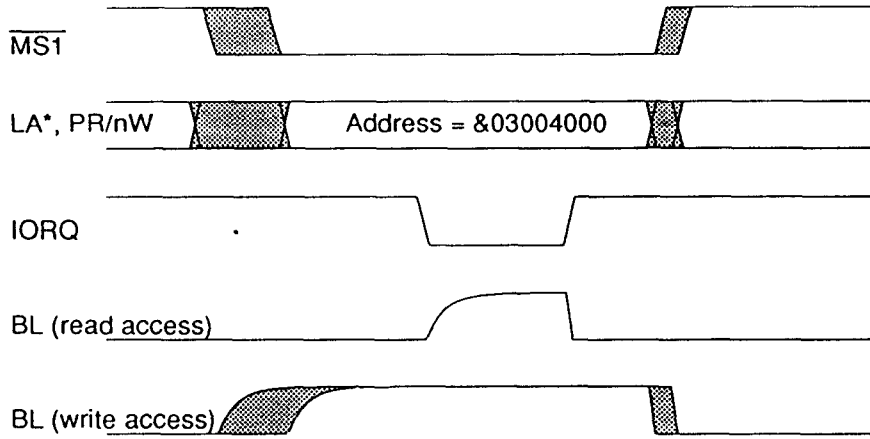
In this example, IOGT is not shown, as it was
derived from $\overline{MS1}$ to create the shortest cycle possible.

Refer to the Acorn Expansion Card Specification
(Acorn part No.: 0472,200) for details of the
electrical performance and design implementation
of expansion cards.

Example read of an 82C711 register

```
LA*     _____X_____Address = &03010000_____X_____

AEN     _____        _____
                   _____/
                        |<------ 416ns ------>|

IOR     _____        _____
                       _____/
                           |<----- 290ns ---->|
```
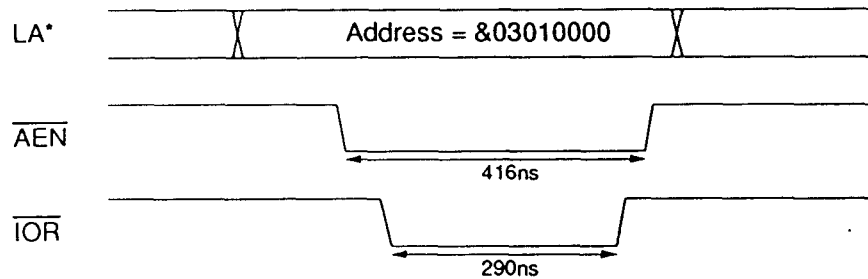
Example write to an 82C711 register

```
LA*     _____X_____Address = &03010000_____X_____

AEN     _____        _____
                   _____/
                        |<------ 416ns ------>|

IOW     _____        _____
                       _____/
                           |<----- 250ns ---->|
```
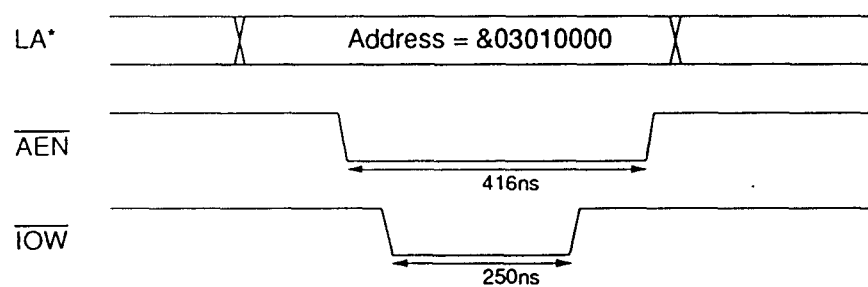
Note: $\overline{\text{AEN}}$, $\overline{\text{IOW}}$, and $\overline{\text{IOR}}$ are generated
by a state machine clocked at the system clock rate (12MHz).

Cable type 5

You need to make this cable to use with monochrome monitors which have a phono input socket. You need a 15-way plug to phono socket adaptor with resistors, to mix the separate red, green and blue signals into a composite monochrome signal (you can fit these components into a 15-way connector shell).

You need to make an adaptor cable that has a 15-way D-type plug on one end, and a phono plug on the other. The connections you need to make are as follows:
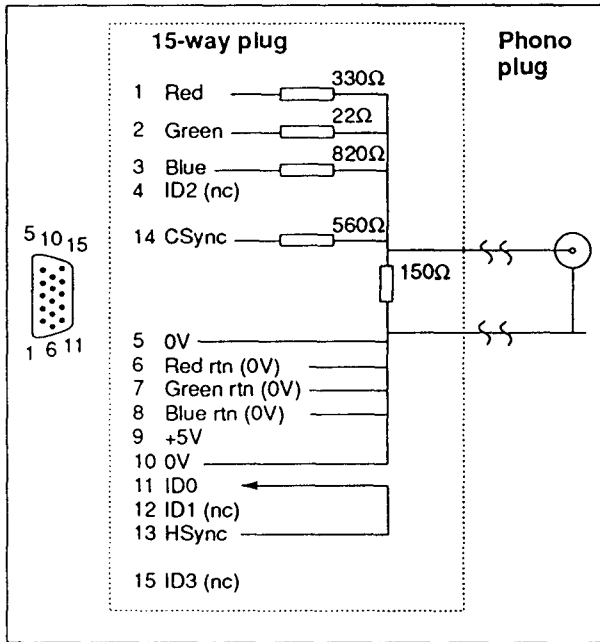
Note: The HSYNC to ID[0] connection will make the monitor type 0 modes available and the computer will generate a composite sync signal.

A3020/A3010 CPU module PCB assembly parts list, issue 1

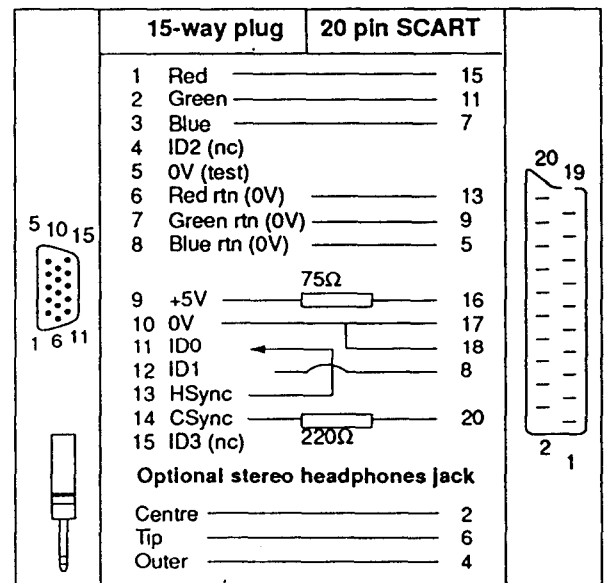| ITEM	PART No.	DESCRIPTION	QTY	Remarks
1	0294,002	BARE PCB		1
2	0194,002/A	PCB ASSEMBLY DWG	1	PER BATCH
3	0194,002/C	PCB CIRCUIT DIAGRAM	1	PER BATCH
C1	0681,101	CPCTR 10U TANT SMD 16V	1	
C2	0681,101	CPCTR 10U TANT SMD 16V	1	
C3	0693,336	CPCTR 33N DCPLR SMD 805	1	
C4	0693,336	CPCTR 33N DCPLR SMD 805	1	
C5	0693,336	CPCTR 33N DCPLR SMD 805	1	
C6	0693,336	CPCTR 33N DCPLR SMD 805	1	
C7	0693,336	CPCTR 33N DCPLR SMD 805	1	
C8	0690,220	CPCTR 22P CML 2% 805	1	
C9	0690,120	CPCTR 12P CML 2% 805	1	
C10	0693,336	CPCTR 33N DCPLR SMD 805	1	
C11	0681,101	CPCTR 10U TANT SMD 16V	1	
C12	0681,101	CPCTR 10U TANT SMD 16V	1	
C13	0693,336	CPCTR 33N DCPLR SMD 805	1	
C14	0690,120	CPCTR 12P CML 2% 805	1	
C15	0690,120	CPCTR 12P CML 2% 805	1	
C16	0693,336	CPCTR 33N DCPLR SMD 805	1	
C17	0693,336	CPCTR 33N DCPLR SMD 805	1	
C18	0693,336	CPCTR 33N DCPLR SMD 805	1	
C19	0693,336	CPCTR 33N DCPLR SMD 805	1	
IC1	0700,104	IC MEMC1A 12MHZ PLSTC	1	
IC2	2201,367	IC VIDC 1A PLSTC	1	
IC3	0700,108	IC ARM 12MZ 84PLCC	1	
IC4	0292,030	IC IOEB ASIC 100QFP	1	
IC5	0758,086	IC 74AC86 CMOS 14P SOIC	1	
IC6	0762,573	IC 74HCT573 CMOS 20P SOIC	1	
IC7	0294,032	IC CPU PAL1 [0760,206TBP]	1	
IC8	0758,032	IC 74AC32 CMOS 14P SOIC	1	
IC9	0761,573	IC 74HC573 CMOS 20P SOIC	1	
IC10	2201,368	IC IOC PLSTC	1	
PL161	0803,212	CONR 40W HIEXT 2ROW 0.1	1	
PL162	0803,212	CONR 40W HIEXT 2ROW 0.1	1	
PL163	0803,212	CONR 40W HIEXT 2ROW 0.1	1	
PL164	0803,212	CONR 40W HIEXT 2ROW 0.1	1	
R1	0523,472	RES 4K7 SMD 5% 0W10 0805	1	
R2	0523,472	RES 4K7 SMD 5% 0W10 0805	1	
R3	0523,103	RES 10K SMD 5% 0W10 0805	1	
R4	0523,330	RES 33R SMD 5% 0W10 0805	1	
R5	0523,472	RES 4K7 SMD 5% 0W10 0805	1	
R6	0523,472	RES 4K7 SMD 5% 0W10 0805	1	
R7	0523,221	RES 220R SMD 5% 0W10 0805	1	
R8	0523,470	RES 47R SMD 5% 0W10 0805	1	
R9	0523,221	RES 220R SMD 5% 0W10 0805	1	
R10	0523,680	RES 68R SMD 5% 0W10 0805	1	
R11	0523,472	RES 4K7 SMD 5% 0W10 0805	1	
R12	0523,472	RES 4K7 SMD 5% 0W10 0805	1	
R13	0523,472	RES 4K7 SMD 5% 0W10 0805	1	
R14	0523,472	RES 4K7 SMD 5% 0W10 0805	1	
R15	0523,331	RES 330R SMD 5% 0W10 0805	1	
R16	0523,680	RES 68R SMD 5% 0W10 0805	1	
R17	0523,470	RES 47R SMD 5% 0W10 0805	1	
R18	0523,470	RES 47R SMD 5% 0W10 0805	1	

ITEM	PART No.	DESCRIPTION	QTY	Remarks
R28	0523.201	RES 200R SMD 5% 0W10 0805	1	
R35	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R36	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R37	0523.680	RES 68R SMD 5% 0W10 0805	1	
R38	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R39	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R40	0523.201	RES 200R SMD 5% 0W10 0805	1	
R41	0523.680	RES 68R SMD 5% 0W10 0805	1	
R43	0523.430	RES 43R SMD 5% 0W10 0805	1	
R45	0523.430	RES 43R SMD 5% 0W10 0805	1	
R47	0523.430	RES 43R SMD 5% 0W10 0805	1	
R48	0523.104	RES 100K SMD 5% 0W10 0805	1	
R49	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R50	0523.680	RES 68R SMD 5% 0W10 0805	1	
R51	0523.339	RES 3R3 SMD 5% 0W10 0805	1	
R53	0523.680	RES 68R SMD 5% 0W10 0805	1	
R54	0523.680	RES 68R SMD 5% 0W10 0805	1	
R55	0523.201	RES 200R SMD 5% 0W10 0805	1	
R56	0523.680	RES 68R SMD 5% 0W10 0805	1	
R57	0522.246	RES 301R SMD 1% 0W25 1206	1	
R58	0522.246	RES 301R SMD 1% 0W25 1206	1	
R59	0522.246	RES 301R SMD 1% 0W25 1206	1	
R60	0523.181	RES 180R SMD 5% 0W10 0805	1	
R61	0523.470	RES 47R SMD 5% 0W10 0805	1	
R62	0523.103	RES 10K SMD 5% 0W10 0805	1	
R63	0523.221	RES 220R SMD 5% 0W10 0805	1	
R64	0523.103	RES 10K SMD 5% 0W10 0805	1	
R65	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R66	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R68	0523.339	RES 3R3 SMD 5% 0W10 0805	1	
R69	0523.100	RES 10R SMD 5% 0W10 0805	1	
R70	0523.103	RES 10K SMD 5% 0W10 0805	1	
R71	0523.331	RES 330R SMD 5% 0W10 0805	1	
R72	0523.331	RES 330R SMD 5% 0W10 0805	1	
R73	0523.181	RES 180R SMD 5% 0W10 0805	1	
R74	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R75	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R77	0523.221	RES 220R SMD 5% 0W10 0805	1	
R78	0523.271	RES 270R SMD 5% 0W10 0805	1	
R79	0523.103	RES 10K SMD 5% 0W10 0805	1	
R80	0523.271	RES 270R SMD 5% 0W10 0805	1	
R81	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R82	0523.331	RES 330R SMD 5% 0W10 0805	1	
R83	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R84	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R85	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R86	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R87	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R88	0523.102	RES 1K0 SMD 5% 0W10 0805	1	
R89	0523.103	RES 10K SMD 5% 0W10 0805	1	
R90	0523.122	RES 1K2 SMD 5% 0W10 0805	1	
R91	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R92	0523.122	RES 1K2 SMD 5% 0W10 0805	1	
R94	0523.104	RES 100K SMD 5% 0W10 0805	1	
R95	0523.101	RES 100R SMD 5% 0W10 0805	1	
R96	0523.223	RES 22K SMD 5% 0W10 0805	1	
R97	0523.220	RES 22R SMD 5% 0W10 0805	1	
R98	0523.104	RES 100K SMD 5% 0W10 0805	1	
R99	0523.104	RES 100K SMD 5% 0W10 0805	1	
R100	0523.104	RES 100K SMD 5% 0W10 0805	1	
R101	0523.104	RES 100K SMD 5% 0W10 0805	1	
R102	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R104	0523.105	RES 1M0 SMD 5% 0W10 0805	1	

ITEM	PART No.	DESCRIPTION	QTY	Remarks
R106	0523.104	RES 100K SMD 5% 0W10 0805	1	
R107	0523.104	RES 100K SMD 5% 0W10 0805	1	
R108	0523.103	RES 10K SMD 5% 0W10 0805	1	
R109	0523.104	RES 100K SMD 5% 0W10 0805	1	
R110	0523.680	RES 68R SMD 5% 0W10 0805	1	
R113	0523.220	RES 22R SMD 5% 0W10 0805	1	
R114	0523.331	RES 330R SMD 5% 0W10 0805	1	
R115	0523.680	RES 68R SMD 5% 0W10 0805	1	
R116	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R117	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R118	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R119	0523.103	RES 10K SMD 5% 0W10 0805	1	
R120	0523.330	RES 33R SMD 5% 0W10 0805	1	
R121	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R122	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R123	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R124	0523.680	RES 68R SMD 5% 0W10 0805	1	
R126	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R127	0522.380	RES 6K81 SMD 1% 0W25 1206	1	
R128	0522.425	RES 18K2 SMD 1% 0W25 1206	1	
R129	0523.122	RES 1K2 SMD 5% 0W10 0805	1	
R131	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R132	0523.680	RES 68R SMD 5% 0W10 0805	1	
R133	0523.680	RES 68R SMD 5% 0W10 0805	1	
R134	0523.680	RES 68R SMD 5% 0W10 0805	1	
R137	0523.680	RES 68R SMD 5% 0W10 0805	1	
R138	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R139	0523.102	RES 1K0 SMD 5% 0W10 0805	1	
R140	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R141	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R142	0523.102	RES 1K0 SMD 5% 0W10 0805	1	
R143	0523.102	RES 1K0 SMD 5% 0W10 0805	1	
R144	0523.102	RES 1K0 SMD 5% 0W10 0805	1	
R145	0523.102	RES 1K0 SMD 5% 0W10 0805	1	
R200	0523.363	RES 36K SMD 5% 0W10 0805	1	
R201	0523.303	RES 30K SMD 5% 0W10 0805	1	
R202	0523.223	RES 22K SMD 5% 0W10 0805	1	
R203	0523.220	RES 22R SMD 5% 0W10 0805	1	
R204	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R205	0523.103	RES 10K SMD 5% 0W10 0805	1	
R206	0523.122	RES 1K2 SMD 5% 0W10 0805	1	
R207	0523.103	RES 10K SMD 5% 0W10 0805	1	
R212	0523.332	RES 3K3 SMD 5% 0W10 0805	1	
R213	0523.222	RES 2K2 SMD 5% 0W10 0805	1	
R215	0523.000	RES ZEROR SMD 0W10 0805	1	
R304	0523.102	RES 1K0 SMD 5% 0W10 0805	1	
R503	0523.680	RES 68R SMD 5% 0W10 0805	1	
R504	0523.680	RES 68R SMD 5% 0W10 0805	1	
R505	0523.680	RES 68R SMD 5% 0W10 0805	1	
R506	0523.680	RES 68R SMD 5% 0W10 0805	1	
R507	0523.680	RES 68R SMD 5% 0W10 0805	1	
R508	0523.680	RES 68R SMD 5% 0W10 0805	1	
R509	0523.680	RES 68R SMD 5% 0W10 0805	1	
R510	0523.680	RES 68R SMD 5% 0W10 0805	1	
R600	0523.220	RES 22R SMD 5% 0W10 0805	1	
R601	0523.220	RES 22R SMD 5% 0W10 0805	1	
R602	0523.220	RES 22R SMD 5% 0W10 0805	1	
R603	0523.220	RES 22R SMD 5% 0W10 0805	1	
R604	0523.220	RES 22R SMD 5% 0W10 0805	1	
R605	0523.220	RES 22R SMD 5% 0W10 0805	1	
R606	0523.103	RES 10K SMD 5% 0W10 0805	1	
R607	0523.680	RES 68R SMD 5% 0W10 0805	1	
R608	0523.330	RES 33R SMD 5% 0W10 0805	1	

ITEM	PART No.	DESCRIPTION	QTY	Remarks
C63	0693.336	CPCTR 33N DCPLR SMD 805	1	
C64	0693.336	CPCTR 33N DCPLR SMD 805	1	
C65	0690.120	CPCTR 12P CML 2% 805	1	
C66	0693.336	CPCTR 33N DCPLR SMD 805	1	
C67	0693.336	CPCTR 33N DCPLR SMD 805	1	
C68	0642.103	CPCTR 100U ALEC 25V RAD	1	
C69	0692.473	CPCTR 47N CML 20% 805	1	
C70	0693.336	CPCTR 33N DCPLR SMD 805	1	
C71	0693.336	CPCTR 33N DCPLR SMD 805	1	
C72	0693.336	CPCTR 33N DCPLR SMD 805	1	
C73	0635.470	CPCTR 47U ALEC 16V RAD	1	
C74	0635.047	CPCTR 4U7 ALEC 16V RAD	1	
C76	0693.336	CPCTR 33N DCPLR SMD 805	1	
C77	0693.336	CPCTR 33N DCPLR SMD 805	1	
C78	0647.002	CPCTR 47U ALEC 16V SMD	1	
C79	0693.336	CPCTR 33N DCPLR SMD 805	1	
C80	0647.002	CPCTR 47U ALEC 16V SMD	1	
C81	0693.336	CPCTR 33N DCPLR SMD 805	1	
C82	0635.100	CPCTR 10U ALEC 16V RAD	1	
C83	0610.010	CPCTR 10U TANT 10V 20% 5P	1	
C84	0635.100	CPCTR 10U ALEC 16V RAD	1	
C85	0693.336	CPCTR 33N DCPLR SMD 805	1	
C86	0635.470	CPCTR 47U ALEC 16V RAD	1	
C87	0693.336	CPCTR 33N DCPLR SMD 805	1	
C88	0647.001	CPCTR 10U ALEC 16V SMD	1	
C89	0693.336	CPCTR 33N DCPLR SMD 805	1	
C90	0647.001	CPCTR 10U ALEC 16V SMD	1	
C91	0693.336	CPCTR 33N DCPLR SMD 805	1	
C92	0693.336	CPCTR 33N DCPLR SMD 805	1	
C93	0647.001	CPCTR 10U ALEC 16V SMD	1	
C94	0693.336	CPCTR 33N DCPLR SMD 805	1	
C95	0693.336	CPCTR 33N DCPLR SMD 805	1	
C98	0690.120	CPCTR 12P CML 2% 805	1	
C99	0690.120	CPCTR 12P CML 2% 805	1	
C100	0693.336	CPCTR 33N DCPLR SMD 805	1	
C101	0693.336	CPCTR 33N DCPLR SMD 805	1	
C102	0693.336	CPCTR 33N DCPLR SMD 805	1	
C103	0693.336	CPCTR 33N DCPLR SMD 805	1	
C105	0681.101	CPCTR 10U TANT SMD 16V	1	
C106	0681.100	CPCTR 47U TANT SMD	1	
C107	0693.336	CPCTR 33N DCPLR SMD 805	1	
C108	0690.101	CPCTR 100P CML 2% 805	1	
C109	0693.336	CPCTR 33N DCPLR SMD 805	1	
C110	0635.230	CPCTR 220U ALEC 16V RAD	1	
C111	0690.101	CPCTR 100P CML 2% 805	1	
C112	0690.101	CPCTR 100P CML 2% 805	1	
C113	0690.101	CPCTR 100P CML 2% 805	1	
C114	0690.101	CPCTR 100P CML 2% 805	1	
C115	0690.101	CPCTR 100P CML 2% 805	1	
C116	0693.336	CPCTR 33N DCPLR SMD 805	1	
C117	0693.336	CPCTR 33N DCPLR SMD 805	1	
C118	0635.230	CPCTR 220U ALEC 16V RAD	1	
C119	0693.336	CPCTR 33N DCPLR SMD 805	1	
C120	0610.010	CPCTR 10U TANT 10V 20% 5P	1	
C121	0693.336	CPCTR 33N DCPLR SMD 805	1	
C122	0690.101	CPCTR 100P CML 2% 805	1	
C123	0690.101	CPCTR 100P CML 2% 805	1	
C124	0693.336	CPCTR 33N DCPLR SMD 805	1	
C125	0690.101	CPCTR 100P CML 2% 805	1	
C126	0690.101	CPCTR 100P CML 2% 805	1	
C127	0691.102	CPCTR 1N CML 10% 805	1	
C128	0690.220	CPCTR 22P CML 2% 805	1	
C129	0690.220	CPCTR 22P CML 2% 805	1	

ITEM	PART No.	DESCRIPTION	QTY	Remarks
C130	0693.336	CPCTR 33N DCPLR SMD 805	1	
C131	0610.010	CPCTR 10U TANT 10V 20% 5P	1	
C132	0690.101	CPCTR 100P CML 2% 805	1	
C133	0691.102	CPCTR 1N CML 10% 805	1	
C134	0690.101	CPCTR 100P CML 2% 805	1	
C135	0691.102	CPCTR 1N CML 10% 805	1	
C136	0690.101	CPCTR 100P CML 2% 805	1	
C137	0693.336	CPCTR 33N DCPLR SMD 805	1	
C138	0693.336	CPCTR 33N DCPLR SMD 805	1	
C139	0610.010	CPCTR 10U TANT 10V 20% 5P	1	
C140	0693.336	CPCTR 33N DCPLR SMD 805	1	
C141	0691.102	CPCTR 1N CML 10% 805	1	
C142	0691.102	CPCTR 1N CML 10% 805	1	
C143	0691.102	CPCTR 1N CML 10% 805	1	
C144	0691.102	CPCTR 1N CML 10% 805	1	
C145	0691.102	CPCTR 1N CML 10% 805	1	
C146	0693.336	CPCTR 33N DCPLR SMD 805	1	
C147	0693.107	CPCTR 100N DCPLR SMD 805	1	
C148	0650.472	CPCTR MPSTR 4N7 63V 10%	1	
C149	0694.272	CPCTR 2N7 CML 5% 805	1	
C150	0650.155	CPCTR MPSTR 150N 63V 5%	1	
C151	0693.336	CPCTR 33N DCPLR SMD 805	1	
C152	0693.107	CPCTR 100N DCPLR SMD 805	1	
C153	0690.101	CPCTR 100P CML 2% 805	1	
C154	0690.101	CPCTR 100P CML 2% 805	1	
C155	0690.101	CPCTR 100P CML 2% 805	1	
C156	0690.101	CPCTR 100P CML 2% 805	1	
C157	0635.470	CPCTR 47U ALEC 16V RAD	1	
C158	0693.107	CPCTR 100N DCPLR SMD 805	1	
C159	0621.470	CPCTR 47U ALEC 10V AX	1	
C160	0693.107	CPCTR 100N DCPLR SMD 805	1	
C161	0635.230	CPCTR 220U ALEC 16V RAD	1	
C163	0693.107	CPCTR 100N DCPLR SMD 805	1	
C164	0621.470	CPCTR 47U ALEC 10V AX	1	
C165	0621.470	CPCTR 47U ALEC 10V AX	1	
C166	0693.107	CPCTR 100N DCPLR SMD 805	1	
C200	0635.106	CPCTR 1000U ALEC 35V RAD	1	
C201	0635.106	CPCTR 1000U ALEC 35V RAD	1	
C202	0691.222	CPCTR 2N2 CML 10% 805	1	
C203	0635.022	CPCTR 2U2 ALEC 50V RAD	1	
C204	0635.022	CPCTR 2U2 ALEC 50V RAD	1	
C205	0691.331	CPCTR 330P CML 10% 0805	1	
C206	0650.223	CPCTR MPSTR 22N 50V 10%	1	
C207	0635.022	CPCTR 2U2 ALEC 50V RAD	1	
C208	0635.022	CPCTR 2U2 ALEC 50V RAD	1	
C209	0650.106	CPCTR MPSTR 100N 50V 10%	1	
C210	0691.102	CPCTR 1N CML 10% 805	1	
C211	0642.103	CPCTR 100U ALEC 25V RAD	1	
C212	0642.103	CPCTR 100U ALEC 25V RAD	1	
C213	0642.103	CPCTR 100U ALEC 25V RAD	1	
C214	0693.336	CPCTR 33N DCPLR SMD 805	1	
C215	0693.336	CPCTR 33N DCPLR SMD 805	1	
C216	0693.336	CPCTR 33N DCPLR SMD 805	1	
C217	0692.333	CPCTR 33N CML 20% 805	1	
C218	0647.002	CPCTR 47U ALEC 16V SMD	1	
C222	0693.336	CPCTR 33N DCPLR SMD 805	1	
C223	0693.336	CPCTR 33N DCPLR SMD 805	1	
C224	0693.336	CPCTR 33N DCPLR SMD 805	1	
C225	0693.336	CPCTR 33N DCPLR SMD 805	1	
C226	0693.336	CPCTR 33N DCPLR SMD 805	1	
C227	0693.336	CPCTR 33N DCPLR SMD 805	1	
C300	0693.107	CPCTR 100N DCPLR SMD 805	1	
C301	0693.107	CPCTR 100N DCPLR SMD 805	1	

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ITEM	PART No.	DESCRIPTION	QTY	Remarks
TP1	0800,060	CONR 1W WAFR 0.1 ST PCB	1	
TP2	0800,060	CONR 1W WAFR 0.1 ST PCB	1	
TP3	0800,060	CONR 1W WAFR 0.1 ST PCB	1	
U1	0825,001	MODUL UHF PAL E36 6MHZSND	1	
X1	0820,043	XTAL 4.433619MHZ HC18	1	
X2	0821,327	XTAL 32.768KHZ CC 0.05P	1	
X4	0820,721	XTAL OSC 72MHZ CMOS DIL	1	
X5	0820,253	XTAL 25.175MHZ HC49 5,08H	1	
X7	0820,240	XTAL 24.00MHZ HC18/V CAN	1	

ITEM	PART No.	DESCRIPTION	QTY	Remarks
	0094,504/A	Final Assembly Drg.		1 Per Batch
	0194,015	Mains Cable Assy	1	
	0192,082	Speaker Cable Assembly	1	
	0194,078	Earth Cable Assembly	1	
	0194,500	E (2M) Main PCB Assy	1	
	0180,011	Keyboard (UK) Variant	1	
	0494,542	E Name/LED Label	1	
	0494,543	E Base Label	1	(AB)
	0494,546	A3020 Base Label		(Calfind)
	0494,559	A3020 Base Label		(Welwyn)
	0494,544	E Mains Label	1	
	0494,046	PSU Label	1	
	0294,080	Battery Insulation Pad	1	
	0294,560	E Lower Metal	1	
	0294,061	Upper Metal	1	
	0294,062	User Access Lid	1	
	0294,563	E Screened Case Upper	1	
	0294,561	E Plastic Case Lower	1	
	0294,564	E Rear Aperture Cover	1	
	0294,069	RAM Upgrade Access Lid	1	
	0294,070	Rear EMC Blanking Gasket	1	
	0294,073	PCB Insulation Sheet	1	
	0194,075	Disc Drive Cable Assy	1	
	0194,076	Disc Drive Pwr Cable Assy	1	
				Not fitted on this Assy
	0800,996	Conrd 4-40UNC ScwLk 5L	2	
	0800,997	Wshr 4-40UNC Int Sprf Snp	8	
	0805,705	Cap 5mmD Plstc Grey	1	
	0880,024	Grmt Cbl Rnd 7,4Dx4T Blk	1	
	0882,120	Scw M3x10 Skt Button Hd	2	
	0882,121	Scw M3x6 Pan HD Posi	8	
	0882,129	Scw M3x6 Skt Cap Hd	1	
	0882,717	Scw 3x6mm Pan Posi PLST45	1	
	0882,902	Nut M3 Stl Full Z/Pas	2	
	0890,013	Foot S/A Rubr 8Dx2.5Hmm	2	
	0940,008	Adh Hot Melt Plst UL94V-0	A/R	
	0882,972	Wshr M3 Sprl lt Stl	2	
	0882,718	Scw 3x8mm Pan Posi PLST45	4	
	0912,024	Floppy Drive 1/2MB 3.5	1	
				Not fitted on this Assy

ITEM	PART No.	DESCRIPTION	QTY	Remarks
IC17	0296.061	RISC OS GREEN (X16) ROM 1	1	
IC18	0296.062	RISC OS GREEN (X16) ROM 2	1	
IC19	0735.488	IC 1488 RS232 DRVR 14SOIC	1	
IC20	0761.138	IC 74HC138 CMOS 16P SOIC	1	
IC21	0704.128	IC DRAM 256KX16 80NS SOJ	1	
IC22	0704.128	IC DRAM 256KX16 80NS SOJ	1	
IC23	0735.489	IC 1489A RS232 RX 14SOIC	1	
IC24	0701.711	IC 82C711 UCNTRLR 100QFP	1	
IC25	0761.139	IC 74HC139 CMOS 16P SOIC	1	
IC27	0758.032	IC 74AC32 CMOS 14P SOIC	1	
IC29	0756.924	IC 74HC4024 CMOS 14P SOIC	1	
IC30	0761.010	IC 74HC10 CMOS 14P SOIC	1	
IM2	0194.007	AUDIO HYBRID 17P	1	
L1	0194.012	TRNSFMR 25VA 240VAC 2R FX	1	
L2	0860.503	IND CHK 1A 80R@100MHZ SMD	1	
L3	0860.503	IND CHK 1A 80R@100MHZ SMD	1	
L4	0860.210	IND 150UH 20% 5A TOROID P	1	
L5	0860.020	CHOKE RF 100UH 10% AX	1	
L6	0860.503	IND CHK 1A 80R@100MHZ SMD	1	
L7	0825.055	BANDPASS FLTR 4.43MHZ 7P	1	
L8	0860.005	CHOKE RF 33UH AX Q45	1	
L9	0825.056	LOW PASS FLTR 180NS 12P	1	
L10	0860.012	CHOKE RF 2U2H AX Q30	1	
L11	0860.503	IND CHK 1A 80R@100MHZ SMD	1	
L12	0860.005	CHOKE RF 33UH AX Q45	1	
L13	0860.503	IND CHK 1A 80R@100MHZ SMD	1	
L14	0860.503	IND CHK 1A 80R@100MHZ SMD	1	
L15	0860.503	IND CHK 1A 80R@100MHZ SMD	1	
L16	0860.503	IND CHK 1A 80R@100MHZ SMD	1	
L17	0860.503	IND CHK 1A 80R@100MHZ SMD	1	
LK1	0870.420	WIRE 22SWG CPR TIN	1	(See Note on Sht 13)
LK2	0800.050	CONR 2W WAFR 0.1 ST PCB	1	
LK3	0800.450	CONR 6W WAFR 0.1 ST PCB	1	
LK4				NOT FITTED
LK5				NOT FITTED
LK6	0800.876	CONR 8W WAFR 0.1 2ROW ST	1	
LK7				NOT FITTED
LK8				NOT FITTED
LK9				NOT FITTED
LK10				NOT FITTED
LK11				NOT FITTED
LK12				NOT FITTED
LK13				NOT FITTED
LK14	0800.051	CONR 3W WAFR 0.1 ST PCB	1	
LK15				NOT FITTED
LK16	0800.450	CONR 6W WAFR 0.1 ST PCB	1	
LK17				NOT FITTED
LK18	0800.050	CONR 2W WAFR 0.1 ST PCB	1	
LK19	0800.458	CONR 2W WAFR 0.1 ST LK	1	
LK20	0800.051	CONR 3W WAFR 0.1 ST PCB	1	
LK21	0800.050	CONR 2W WAFR 0.1 ST PCB	1	
LK22	0800.051	CONR 3W WAFR 0.1 ST PCB	1	
LK30				NOT FITTED
PL1	0800.235	CONR 2W WAFR ST 0.312 LK	1	
PL2	0800.203	FSTN TAB 6.3MMX0.8 ST PCB	1	
PL3	0800.203	FSTN TAB 6.3MMX0.8 ST PCB	1	
PL4	0800.203	FSTN TAB 6.3MMX0.8 ST PCB	1	
PL5	0800.932	CONR 4W PLG PCB ST DISC P	1	
PL6	0898.003	CONRD 9WPLG RA PCB+RFI+L	1	
PL7	0898.003	CONRD 9WPLG RA PCB+RFI+L	1	
PL8	0898.003	CONRD 9WPLG RA PCB+RFI+L	1	
PL9	0898.002	CONR 34W BOX IDC LP ST	1	

ITEM	PART No.	DESCRIPTION	QTY	Remarks
Q1	0778.212	VOLT REG 78L12 12V 8PSOIC	1	
Q2	0778.106	VOLT REG L4960 ADJ 2A5	1	
Q3	0784.849	TRANS BC849C NPN SOT23	1	
Q4	0784.906	TRANS SM3906 PNP SOT23	1	
Q5	0784.906	TRANS SM3906 PNP SOT23	1	
Q6	0784.906	TRANS SM3906 PNP SOT23	1	
Q7	0784.906	TRANS SM3906 PNP SOT23	1	
Q8	0784.906	TRANS SM3906 PNP SOT23	1	
Q9	0784.906	TRANS SM3906 PNP SOT23	1	
Q10	0784.906	TRANS SM3906 PNP SOT23	1	
R1	0523.223	RES 22K SMD 5% 0W10 0805	1	
R2	0523.101	RES 100R SMD 5% 0W10 0805	1	
R3	0523.183	RES 18K SMD 5% 0W10 0805	1	
R4	0523.153	RES 15K SMD 5% 0W10 0805	1	
R5	0522.361	RES 4K32 SMD 1% 0W25 1206	1	
R6	0523.102	RES 1K0 SMD 5% 0W10 0805	1	
R7				NOT FITTED
R8	0522.317	RES 1K50 SMD 1% 0W25 1206	1	
R9	0523.153	RES 15K SMD 5% 0W10 0805	1	
R10				NOT FITTED
R11	0523.000	RES ZEROR SMD 0W10 0805	1	
R12	0522.325	RES 1K82 SMD 1% 0W25 1206	1	
R13	0522.442	RES 27K4 SMD 1% 0W25 1206	1	
R14	0523.102	RES 1K0 SMD 5% 0W10 0805	1	
R15	0523.102	RES 1K0 SMD 5% 0W10 0805	1	
R16	0523.222	RES 2K2 SMD 5% 0W10 0805	1	
R17	0523.222	RES 2K2 SMD 5% 0W10 0805	1	
R18	0523.122	RES 1K2 SMD 5% 0W10 0805	1	
R19	0522.307	RES 1K18 SMD 1% 0W25 1206	1	
R20	0523.102	RES 1K0 SMD 5% 0W10 0805	1	
R21	0523.102	RES 1K0 SMD 5% 0W10 0805	1	
R22	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R23	0523.152	RES 1K5 SMD 5% 0W10 0805	1	
R24	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R25	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R26	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R27	0523.680	RES 68R SMD 5% 0W10 0805	1	
R28	0523.201	RES 200R SMD 5% 0W10 0805	1	
R29	0523.680	RES 68R SMD 5% 0W10 0805	1	
R30	0523.330	RES 33R SMD 5% 0W10 0805	1	
R31	0523.680	RES 68R SMD 5% 0W10 0805	1	
R32	0523.330	RES 33R SMD 5% 0W10 0805	1	
R33	0523.680	RES 68R SMD 5% 0W10 0805	1	
R34	0523.330	RES 33R SMD 5% 0W10 0805	1	
R35	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R36	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R37	0523.680	RES 68R SMD 5% 0W10 0805	1	
R38	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R39	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R40	0523.201	RES 200R SMD 5% 0W10 0805	1	
R41	0523.680	RES 68R SMD 5% 0W10 0805	1	
R42	0523.470	RES 47R SMD 5% 0W10 0805	1	
R43	0523.430	RES 43R SMD 5% 0W10 0805	1	
R44	0523.470	RES 47R SMD 5% 0W10 0805	1	
R45	0523.430	RES 43R SMD 5% 0W10 0805	1	
R46	0523.470	RES 47R SMD 5% 0W10 0805	1	
R47	0523.430	RES 43R SMD 5% 0W10 0805	1	
R48	0523.104	RES 100K SMD 5% 0W10 0805	1	
R49	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R50	0523.680	RES 68R SMD 5% 0W10 0805	1	
R51	0523.339	RES 3R3 SMD 5% 0W10 0805	1	
R53	0523.680	RES 68R SMD 5% 0W10 0805	1	
R54	0523.680	RES 68R SMD 5% 0W10 0805	1	

A3010 2M (ARM250) main PCB assembly parts list, issue 2

ITEM	PART No.	DESCRIPTION	QTY	Remarks
1	0294.003	BARE PCB		1
2	0194.006/A	(2M) PCB ASSEMBLY DWG	1 PER BATCH	
3	0194.003/C	PCB CIRCUIT DIAGRAM	1 PER BATCH	
5	0494.055	PCB HEATSINK LABEL	1	
6	0294.074	PSU INSULATION SHEET	1	
7	0494.085	C (2M) PCB LABEL	1	
9	0800.070	CONR 2W SHUNT 0.1	5	LK6(x2),14,2, 22
10	0800.070	CONR 2W SHUNT 0.1	1	LK2 (See Note on Sht 13)
11	0870.420	WIRE 22SWG CPR TIN	A/R	
12	0885.310	WSHR INS MTG XTAL HC49	1	Use with X5
13	0884.038	RIVET PLST SNAP 6.35 THK	2	Use with Items 1 and 6
14	0884.042	RIVET POP DOME 32D & THK	2	Use with Items 1 and HS1
16	0882.128	SCW M3x8 PAN HD POSI	1	Use with Items 6 and Q2
17	0882.902	NUT M3 STL FULL Z/PAS	1	Use with Items 6 and Q2
18	0882.972	WSHR M3 SPRF IT STL	1	Use with Items 6 and Q2
19	0902.004	LABEL SERIAL PCB 40x10mm	1	
20	0945.000	HEAT SINK COMPOUND SI	A/R	Use with HS1 and Q2
21	0815.910	FUSE CLIP 5MMD SE PCB	2	FS1
22	0800.103	SKT IC 40W ZIP SUPA	1	IC6
23	0800.103	SKT IC 40W ZIP SUPA	1	IC11
24	0800.197	SKT STRIP 3/0.1 TURN	1	IC12
25	0800.102	SKT IC 42/0.6 SUPA	1	IC17
26	0800.102	SKT IC 42/0.6 SUPA	1	IC18
BT2	0817.014	BAT NI 1V2 280MAH VT PCB	1	
C1	0635.100	CPCTR 10U ALEC 16V RAD	1	
C2	0635.230	CPCTR 220U ALEC 16V RAD	1	
C3	0692.473	CPCTR 47N CML 20% 805	1	
C4				NOT FITTED
C5				NOT FITTED
C6	0635.230	CPCTR 220U ALEC 16V RAD	1	
C7				NOT FITTED
C8	0693.107	CPCTR 100N DCPLR SMD 805	1	
C9	0635.100	CPCTR 10U ALEC 16V RAD	1	
C10	0635.106	CPCTR 1000U ALEC 35V RAD	1	
C11	0692.104	CPCTR 100N CML 20% 805	1	
C12	0650.333	CPCTR MPSTR 33N 50V 20%	1	
C13	0691.222	CPCTR 2N2 CML 10% 805	1	
C14	0635.470	CPCTR 47U ALEC 16V RAD	1	
C15	0650.472	CPCTR MPSTR 4N7 63V 10%	1	
C16	0635.470	CPCTR 47U ALEC 16V RAD	1	
C17	0692.104	CPCTR 100N CML 20% 805	1	
C18	0635.476	CPCTR 470U ALEC 35V RAD	1	
C19	0635.024	CPCTR ALEC 2U2 50V HT 5MM	1	
C20	0635.230	CPCTR 220U ALEC 16V RAD	1	
C21	0635.230	CPCTR 220U ALEC 16V RAD	1	
C22	0635.226	CPCTR 220U ALEC 16V RAD H	1	
C23	0693.336	CPCTR 33N DCPLR SMD 805	1	
C24	0693.336	CPCTR 33N DCPLR SMD 805	1	
C25	0699.003	CPCTR TRMR 5/65P 250V	1	
C26	0690.330	CPCTR 33P CML 2% 805	1	
C27				NOT FITTED
C28	0635.470	CPCTR 47U ALEC 16V RAD	1	
C29	0693.336	CPCTR 33N DCPLR SMD 805	1	
C30	0642.103	CPCTR 100U ALEC 25V RAD	1	
C31	0693.336	CPCTR 33N DCPLR SMD 805	1	

ITEM	PART No.	DESCRIPTION	QTY	Remarks
C32	0692.104	CPCTR 100N CML 20% 805	1	
C33	0635.100	CPCTR 10U ALEC 16V RAD	1	
C34	0692.104	CPCTR 100N CML 20% 805	1	
C35	0692.104	CPCTR 100N CML 20% 805	1	
C36	0692.104	CPCTR 100N CML 20% 805	1	
C37	0693.336	CPCTR 33N DCPLR SMD 805	1	
C38	0693.336	CPCTR 33N DCPLR SMD 805	1	
C39	0635.230	CPCTR 220U ALEC 16V RAD	1	
C40	0693.336	CPCTR 33N DCPLR SMD 805	1	
C41	0691.102	CPCTR 1N CML 10% 805	1	
C42	0691.102	CPCTR 1N CML 10% 805	1	
C43	0693.336	CPCTR 33N DCPLR SMD 805	1	
C44	0693.336	CPCTR 33N DCPLR SMD 805	1	
C45	0690.820	CPCTR 82P CML 2% 805	1	
C46	0692.473	CPCTR 47N CML 20% 805	1	
C47	0692.473	CPCTR 47N CML 20% 805	1	
C48	0692.473	CPCTR 47N CML 20% 805	1	
C49	0635.230	CPCTR 220U ALEC 16V RAD	1	
C50	0693.336	CPCTR 33N DCPLR SMD 805	1	
C51	0691.102	CPCTR 1N CML 10% 805	1	
C52	0691.102	CPCTR 1N CML 10% 805	1	
C53	0691.102	CPCTR 1N CML 10% 805	1	
C54	0690.820	CPCTR 82P CML 2% 805	1	
C55	0690.820	CPCTR 82P CML 2% 805	1	
C56	0690.820	CPCTR 82P CML 2% 805	1	
C57	0690.820	CPCTR 82P CML 2% 805	1	
C58	0690.820	CPCTR 82P CML 2% 805	1	
C59	0610.010	CPCTR 10U TANT 10V 20% 5P	1	
C60	0642.103	CPCTR 100U ALEC 25V RAD	1	
C61	0691.102	CPCTR 1N CML 10% 805	1	
C62	0635.470	CPCTR 47U ALEC 16V RAD	1	
C63	0693.336	CPCTR 33N DCPLR SMD 805	1	
C64	0693.336	CPCTR 33N DCPLR SMD 805	1	
C65	0690.120	CPCTR 12P CML 2% 805	1	
C66	0693.336	CPCTR 33N DCPLR SMD 805	1	
C67	0693.336	CPCTR 33N DCPLR SMD 805	1	
C68	0642.103	CPCTR 100U ALEC 25V RAD	1	
C69	0692.473	CPCTR 47N CML 20% 805	1	
C70	0693.336	CPCTR 33N DCPLR SMD 805	1	
C71	0693.336	CPCTR 33N DCPLR SMD 805	1	
C72	0693.336	CPCTR 33N DCPLR SMD 805	1	
C73	0635.470	CPCTR 47U ALEC 16V RAD	1	
C74	0635.047	CPCTR 4U7 ALEC 16V RAD	1	
C76	0693.336	CPCTR 33N DCPLR SMD 805	1	
C77	0693.336	CPCTR 33N DCPLR SMD 805	1	
C78	0635.470	CPCTR 47U ALEC 16V RAD	1	
C79	0693.336	CPCTR 33N DCPLR SMD 805	1	
C80	0635.470	CPCTR 47U ALEC 16V RAD	1	
C81	0693.336	CPCTR 33N DCPLR SMD 805	1	
C82	0635.100	CPCTR 10U ALEC 16V RAD	1	
C83	0610.010	CPCTR 10U TANT 10V 20% 5P	1	
C84	0635.100	CPCTR 10U ALEC 16V RAD	1	
C85	0693.336	CPCTR 33N DCPLR SMD 805	1	
C86	0635.470	CPCTR 47U ALEC 16V RAD	1	
C87	0693.336	CPCTR 33N DCPLR SMD 805	1	
C88	0635.100	CPCTR 10U ALEC 16V RAD	1	
C89	0693.336	CPCTR 33N DCPLR SMD 805	1	
C90	0635.100	CPCTR 10U ALEC 16V RAD	1	
C91	0693.336	CPCTR 33N DCPLR SMD 805	1	
C92	0693.336	CPCTR 33N DCPLR SMD 805	1	
C93	0635.100	CPCTR 10U ALEC 16V RAD	1	

ITEM	PART No.	DESCRIPTION	QTY	Remarks
Q4	0784.906	TRANS SM3906 PNP SOT23	1	
Q5	0784.906	TRANS SM3906 PNP SOT23	1	
Q6	0784.906	TRANS SM3906 PNP SOT23	1	
Q7	0784.906	TRANS SM3906 PNP SOT23	1	
Q8	0784.906	TRANS SM3906 PNP SOT23	1	
Q9	0784.906	TRANS SM3906 PNP SOT23	1	
Q10	0784.906	TRANS SM3906 PNP SOT23	1	
R1	0523.223	RES 22K SMD 5% 0W10 0805	1	
R2	0523.101	RES 100R SMD 5% 0W10 0805	1	
R3	0523.183	RES 18K SMD 5% 0W10 0805	1	
R4	0523.153	RES 15K SMD 5% 0W10 0805	1	
R5	0522.361	RES 4K32 SMD 1% 0W25 1206	1	
R6	0523.102	RES 1K0 SMD 5% 0W10 0805	1	
R7				NOT FITTED
R8	0522.317	RES 1K50 SMD 1% 0W25 1206	1	
R9	0523.153	RES 15K SMD 5% 0W10 0805	1	
R10				NOT FITTED
R11	0523.000	RES ZEROR SMD 0W10 0805	1	
R12	0522.325	RES 1K82 SMD 1% 0W25 1206	1	
R13	0522.442	RES 27K4 SMD 1% 0W25 1206	1	
R14	0523.102	RES 1K0 SMD 5% 0W10 0805	1	
R15	0523.102	RES 1K0 SMD 5% 0W10 0805	1	
R16	0523.222	RES 2K2 SMD 5% 0W10 0805	1	
R17	0523.222	RES 2K2 SMD 5% 0W10 0805	1	
R18	0523.122	RES 1K2 SMD 5% 0W10 0805	1	
R19	0522.307	RES 1K18 SMD 1% 0W25 1206	1	
R20	0523.102	RES 1K0 SMD 5% 0W10 0805	1	
R21	0523.102	RES 1K0 SMD 5% 0W10 0805	1	
R22	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R23	0523.152	RES 1K5 SMD 5% 0W10 0805	1	
R24	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R25	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R26	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R27	0523.680	RES 68R SMD 5% 0W10 0805	1	
R28	0523.201	RES 200R SMD 5% 0W10 0805	1	
R29	0523.680	RES 68R SMD 5% 0W10 0805	1	
R30	0523.330	RES 33R SMD 5% 0W10 0805	1	
R31	0523.680	RES 68R SMD 5% 0W10 0805	1	
R32	0523.330	RES 33R SMD 5% 0W10 0805	1	
R33	0523.680	RES 68R SMD 5% 0W10 0805	1	
R34	0523.330	RES 33R SMD 5% 0W10 0805	1	
R35	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R36	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R37	0523.680	RES 68R SMD 5% 0W10 0805	1	
R38	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R39	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R40	0523.201	RES 200R SMD 5% 0W10 0805	1	
R41	0523.680	RES 68R SMD 5% 0W10 0805	1	
R42	0523.470	RES 47R SMD 5% 0W10 0805	1	
R43	0523.430	RES 43R SMD 5% 0W10 0805	1	
R44	0523.470	RES 47R SMD 5% 0W10 0805	1	
R45	0523.430	RES 43R SMD 5% 0W10 0805	1	
R46	0523.470	RES 47R SMD 5% 0W10 0805	1	
R47	0523.430	RES 43R SMD 5% 0W10 0805	1	
R48	0523.104	RES 100K SMD 5% 0W10 0805	1	
R49	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R50	0523.680	RES 68R SMD 5% 0W10 0805	1	
R51	0523.339	RES 3R3 SMD 5% 0W10 0805	1	
R53	0523.680	RES 68R SMD 5% 0W10 0805	1	
R54	0523.680	RES 68R SMD 5% 0W10 0805	1	
R55	0523.201	RES 200R SMD 5% 0W10 0805	1	
R57	0522.246	RES 301R SMD 1% 0W25 1206	1	
R58	0522.246	RES 301R SMD 1% 0W25 1206	1	

ITEM	PART No.	DESCRIPTION	QTY	Remarks
R59	0522.246	RES 301R SMD 1% 0W25 1206	1	
R60	0523.181	RES 180R SMD 5% 0W10 0805	1	
R61	0523.470	RES 47R SMD 5% 0W10 0805	1	
R62	0523.103	RES 10K SMD 5% 0W10 0805	1	
R63	0523.221	RES 220R SMD 5% 0W10 0805	1	
R64	0523.103	RES 10K SMD 5% 0W10 0805	1	
R65	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R66	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R68	0523.339	RES 3R3 SMD 5% 0W10 0805	1	
R69	0523.100	RES 10R SMD 5% 0W10 0805	1	
R70	0523.103	RES 10K SMD 5% 0W10 0805	1	
R71	0523.331	RES 330R SMD 5% 0W10 0805	1	
R72	0523.331	RES 330R SMD 5% 0W10 0805	1	
R73	0523.181	RES 180R SMD 5% 0W10 0805	1	
R74	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R75	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R77	0523.221	RES 220R SMD 5% 0W10 0805	1	
R78	0523.271	RES 270R SMD 5% 0W10 0805	1	
R79	0523.103	RES 10K SMD 5% 0W10 0805	1	
R80	0523.271	RES 270R SMD 5% 0W10 0805	1	
R81	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R82	0523.331	RES 330R SMD 5% 0W10 0805	1	
R83	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R84	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R85	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R86	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R87	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R88	0523.102	RES 1K0 SMD 5% 0W10 0805	1	
R89	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R90	0523.122	RES 1K2 SMD 5% 0W10 0805	1	
R91	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R92	0523.122	RES 1K2 SMD 5% 0W10 0805	1	
R94	0523.104	RES 100K SMD 5% 0W10 0805	1	
R95	0523.101	RES 100R SMD 5% 0W10 0805	1	
R96	0523.223	RES 22K SMD 5% 0W10 0805	1	
R97	0523.220	RES 22R SMD 5% 0W10 0805	1	
R98	0523.104	P□3 :00K SMD 5% 0W10 0805	1	
R99	0523.104	RES 100K SMD 5% 0W10 0805	1	
R100	0523.104	RES 100K SMD 5% 0W10 0805	1	
R101	0523.104	RES 100K SMD 5% 0W10 0805	1	
R102	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R104	0523.105	RES 1M0 SMD 5% 0W10 0805	1	
R106	0523.104	RES 100K SMD 5% 0W10 0805	1	
R107	0523.104	RES 100K SMD 5% 0W10 0805	1	
R108	0523.103	RES 10K SMD 5% 0W10 0805	1	
R109	0523.104	RES 100K SMD 5% 0W10 0805	1	
R110	0523.470	RES 47R SMD 5% 0W10 0805	1	
R111	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R112	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R113	0523.220	RES 22R SMD 5% 0W10 0805	1	
R114	0523.331	RES 330R SMD 5% 0W10 0805	1	
R115	0523.680	RES 68R SMD 5% 0W10 0805	1	
R116	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R117	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R118	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R119	0523.103	RES 10K SMD 5% 0W10 0805	1	
R120	0523.330	RES 33R SMD 5% 0W10 0805	1	
R121	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R122	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R123	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R124	0523.680	RES 68R SMD 5% 0W10 0805	1	
R125	0523.104	RES 100K SMD 5% 0W10 0805	1	
R126	0523.472	RES 4K7 SMD 5% 0W10 0805	1	

ITEM	PART No.	DESCRIPTION	QTY	Remarks
C33	0635.100	CPCTR 10U ALEC 16V RAD	1	
C34	0692.104	CPCTR 100N CML 20% 805	1	
C35	0692.104	CPCTR 100N CML 20% 805	1	
C36	0692.104	CPCTR 100N CML 20% 805	1	
C37	0693.336	CPCTR 33N DCPLR SMD 805	1	
C38	0693.336	CPCTR 33N DCPLR SMD 805	1	
C39	0635.230	CPCTR 220U ALEC 16V RAD	1	
C40	0693.336	CPCTR 33N DCPLR SMD 805	1	
C41	0691.102	CPCTR 1N CML 10% 805	1	
C42	0691.102	CPCTR 1N CML 10% 805	1	
C43	0693.336	CPCTR 33N DCPLR SMD 805	1	
C44	0693.336	CPCTR 33N DCPLR SMD 805	1	
C45	0690.820	CPCTR 82P CML 2% 805	1	
C46	0692.473	CPCTR 47N CML 20% 805	1	
C47	0692.473	CPCTR 47N CML 20% 805	1	
C48	0692.473	CPCTR 47N CML 20% 805	1	
C49	0635.230	CPCTR 220U ALEC 16V RAD	1	
C50	0693.336	CPCTR 33N DCPLR SMD 805	1	
C51	0691.102	CPCTR 1N CML 10% 805	1	
C52	0691.102	CPCTR 1N CML 10% 805	1	
C53	0691.102	CPCTR 1N CML 10% 805	1	
C54	0690.820	CPCTR 82P CML 2% 805	1	
C55	0690.820	CPCTR 82P CML 2% 805	1	
C56	0690.820	CPCTR 82P CML 2% 805	1	
C57	0690.820	CPCTR 82P CML 2% 805	1	
C58	0690.820	CPCTR 82P CML 2% 805	1	
C59	0610.010	CPCTR 10U TANT 10V 20% 5P	1	
C60	0642.103	CPCTR 100U ALEC 25V RAD	1	
C61	0691.102	CPCTR 1N CML 10% 805	1	
C62	0635.470	CPCTR 47U ALEC 16V RAD	1	
C63	0693.336	CPCTR 33N DCPLR SMD 805	1	
C64	0693.336	CPCTR 33N DCPLR SMD 805	1	
C65	0690.120	CPCTR 12P CML 2% 805	1	
C66	0693.336	CPCTR 33N DCPLR SMD 805	1	
C67	0693.336	CPCTR 33N DCPLR SMD 805	1	
C68	0642.103	CPCTR 100U ALEC 25V RAD	1	
C69	0692.473	CPCTR 47N CML 20% 805	1	
C70	0693.336	CPCTR 33N DCPLR SMD 805	1	
C71	0693.336	CPCTR 33N DCPLR SMD 805	1	
C72	0693.336	CPCTR 33N DCPLR SMD 805	1	
C73	0635.470	CPCTR 47U ALEC 16V RAD	1	
C74	0635.047	CPCTR 4U7 ALEC 16V RAD	1	
C76	0693.336	CPCTR 33N DCPLR SMD 805	1	
C77	0693.336	CPCTR 33N DCPLR SMD 805	1	
C78	0635.470	CPCTR 47U ALEC 16V RAD	1	
C79	0693.336	CPCTR 33N DCPLR SMD 805	1	
C80	0635.470	CPCTR 47U ALEC 16V RAD	1	
C81	0693.336	CPCTR 33N DCPLR SMD 805	1	
C82	0635.100	CPCTR 10U ALEC 16V RAD	1	
C83	0610.010	CPCTR 10U TANT 10V 20% 5P	1	
C84	0635.100	CPCTR 10U ALEC 16V RAD	1	
C85	0693.336	CPCTR 33N DCPLR SMD 805	1	
C86	0635.470	CPCTR 47U ALEC 16V RAD	1	
C87	0693.336	CPCTR 33N DCPLR SMD 805	1	
C88	0635.100	CPCTR 10U ALEC 16V RAD	1	
C89	0693.336	CPCTR 33N DCPLR SMD 805	1	
C90	0635.100	CPCTR 10U ALEC 16V RAD	1	
C91	0693.336	CPCTR 33N DCPLR SMD 805	1	
C92	0693.336	CPCTR 33N DCPLR SMD 805	1	
C93	0635.100	CPCTR 10U ALEC 16V RAD	1	
C94	0693.336	CPCTR 33N DCPLR SMD 805	1	
C95	0693.336	CPCTR 33N DCPLR SMD 805	1	
C96	0693.336	CPCTR 33N DCPLR SMD 805	1	

ITEM	PART No.	DESCRIPTION	QTY	Remarks
C98	0690.120	CPCTR 12P CML 2% 805	1	
C99	0690.120	CPCTR 12P CML 2% 805	1	
C100	0693.336	CPCTR 33N DCPLR SMD 805	1	
C101	0693.336	CPCTR 33N DCPLR SMD 805	1	
C102	0693.336	CPCTR 33N DCPLR SMD 805	1	
C103	0693.336	CPCTR 33N DCPLR SMD 805	1	
C104	0693.336	CPCTR 33N DCPLR SMD 805	1	
C105	0610.010	CPCTR 10U TANT 10V 20% 5P	1	
C106	0610.047	CPCTR 47U TANT 10V 20% 5P	1	
C107	0693.336	CPCTR 33N DCPLR SMD 805	1	
C108	0690.101	CPCTR 100P CML 2% 805	1	
C109	0693.336	CPCTR 33N DCPLR SMD 805	1	
C110	0635.230	CPCTR 220U ALEC 16V RAD	1	
C111	0690.101	CPCTR 100P CML 2% 805	1	
C112	0690.101	CPCTR 100P CML 2% 805	1	
C113	0690.101	CPCTR 100P CML 2% 805	1	
C114	0690.101	CPCTR 100P CML 2% 805	1	
C115	0690.101	CPCTR 100P CML 2% 805	1	
C116	0693.336	CPCTR 33N DCPLR SMD 805	1	
C117	0693.336	CPCTR 33N DCPLR SMD 805	1	
C118	0635.230	CPCTR 220U ALEC 16V RAD	1	
C119	0693.336	CPCTR 33N DCPLR SMD 805	1	
C120	0610.010	CPCTR 10U TANT 10V 20% 5P	1	
C121	0693.336	CPCTR 33N DCPLR SMD 805	1	
C122	0690.101	CPCTR 100P CML 2% 805	1	
C123	0690.101	CPCTR 100P CML 2% 805	1	
C124	0693.336	CPCTR 33N DCPLR SMD 805	1	
C125	0690.101	CPCTR 100P CML 2% 805	1	
C126	0690.101	CPCTR 100P CML 2% 805	1	
C127	0691.102	CPCTR 1N CML 10% 805	1	
C128	0690.220	CPCTR 22P CML 2% 805	1	
C129	0690.220	CPCTR 22P CML 2% 805	1	
C130	0693.336	CPCTR 33N DCPLR SMD 805	1	
C131	0610.010	CPCTR 10U TANT 10V 20% 5P	1	
C132	0690.101	CPCTR 100P CML 2% 805	1	
C133	0691.102	CPCTR 1N CML 10% 805	1	
C134	0690.101	CPCTR 100P CML 2% 805	1	
C135	0691.102	CPCTR 1N CML 10% 805	1	
C136	0690.101	CPCTR 100P CML 2% 805	1	
C137	0693.336	CPCTR 33N DCPLR SMD 805	1	
C138	0693.336	CPCTR 33N DCPLR SMD 805	1	
C139	0610.010	CPCTR 10U TANT 10V 20% 5P	1	
C140	0693.336	CPCTR 33N DCPLR SMD 805	1	
C141	0691.102	CPCTR 1N CML 10% 805	1	
C142	0691.102	CPCTR 1N CML 10% 805	1	
C143	0691.102	CPCTR 1N CML 10% 805	1	
C144	0691.102	CPCTR 1N CML 10% 805	1	
C145	0691.102	CPCTR 1N CML 10% 805	1	
C146	0693.336	CPCTR 33N DCPLR SMD 805	1	
C147	0693.107	CPCTR 100N DCPLR SMD 805	1	
C148	0650.472	CPCTR MPSTR 4N7 63V 10%	1	
C149	0694.272	CPCTR 2N7 CML 5% 805	1	
C150	0650.155	CPCTR MPSTR 150N 63V 5%	1	
C151	0693.336	CPCTR 33N DCPLR SMD 805	1	
C152	0693.107	CPCTR 100N DCPLR SMD 805	1	
C153	0690.101	CPCTR 100P CML 2% 805	1	
C154	0690.101	CPCTR 100P CML 2% 805	1	
C155	0690.101	CPCTR 100P CML 2% 805	1	
C156	0690.101	CPCTR 100P CML 2% 805	1	
C157	0635.470	CPCTR 47U ALEC 16V RAD	1	
C158	0693.107	CPCTR 100N DCPLR SMD 805	1	
C159	0621.470	CPCTR 47U ALEC 10V AX	1	
C160	0693.107	CPCTR 100N DCPLR SMD 805	1	

ITEM	PART No.	DESCRIPTION	QTY	Remarks
Q10	0784,906	TRANS SM3906 PNP SOT23	1	
R1	0523,223	RES 22K SMD 5% 0W10 0805	1	
R2	0523,101	RES 100R SMD 5% 0W10 0805	1	
R3	0523,183	RES 18K SMD 5% 0W10 0805	1	
R4	0523,153	RES 15K SMD 5% 0W10 0805	1	
R5	0522,361	RES 4K32 SMD 1% 0W25 1206	1	
R6	0523,102	RES 1K0 SMD 5% 0W10 0805	1	
R7	0522,147	RES 30R9 SMD 1% 0W25 1206	1	
R8	0522,211	RES 130R SMD 1% 0W25 1206	1	
R9	0523,153	RES 15K SMD 5% 0W10 0805	1	
R10				NOT FITTED
R11	0523,000	RES ZEROR SMD 0W10 0805	1	
R12	0522,308	RES 1K21 SMD 1% 0W25 1206	1	
R13	0522,442	RES 27K4 SMD 1% 0W25 1206	1	
R14	0523,102	RES 1K0 SMD 5% 0W10 0805	1	
R15	0523,102	RES 1K0 SMD 5% 0W10 0805	1	
R16	0523,222	RES 2K2 SMD 5% 0W10 0805	1	
R17	0523,222	RES 2K2 SMD 5% 0W10 0805	1	
R18	0523,122	RES 1K2 SMD 5% 0W10 0805	1	
R19	0522,289	RES 845R SMD 1% 0W25 1206	1	
R20	0523,102	RES 1K0 SMD 5% 0W10 0805	1	
R21	0523,102	RES 1K0 SMD 5% 0W10 0805	1	
R22	0523,472	RES 4K7 SMD 5% 0W10 0805	1	
R23	0523,152	RES 1K5 SMD 5% 0W10 0805	1	
R24	0523,472	RES 4K7 SMD 5% 0W10 0805	1	
R25	0523,472	RES 4K7 SMD 5% 0W10 0805	1	
R26	0523,472	RES 4K7 SMD 5% 0W10 0805	1	
R27	0523,680	RES 68R SMD 5% 0W10 0805	1	
R28	0523,221	RES 220R SMD 5% 0W10 0805	1	
R29	0523,680	RES 68R SMD 5% 0W10 0805	1	
R30	0523,330	RES 33R SMD 5% 0W10 0805	1	
R31	0523,680	RES 68R SMD 5% 0W10 0805	1	
R32	0523,330	RES 33R SMD 5% 0W10 0805	1	
R33	0523,680	RES 68R SMD 5% 0W10 0805	1	
R34	0523,330	RES 33R SMD 5% 0W10 0805	1	
R35	0523,472	RES 4K7 SMD 5% 0W10 0805	1	
R36	0523,472	RES 4K7 SMD 5% 0W10 0805	1	
R37	0523,680	RES 68R SMD 5% 0W10 0805	1	
R38	0523,472	RES 4K7 SMD 5% 0W10 0805	1	
R39	0523,472	RES 4K7 SMD 5% 0W10 0805	1	
R40	0523,221	RES 220R SMD 5% 0W10 0805	1	
R41	0523,680	RES 68R SMD 5% 0W10 0805	1	
R42	0523,470	RES 47R SMD 5% 0W10 0805	1	
R43	0523,430	RES 43R SMD 5% 0W10 0805	1	
R44	0523,470	RES 47R SMD 5% 0W10 0805	1	
R45	0523,430	RES 43R SMD 5% 0W10 0805	1	
R46	0523,470	RES 47R SMD 5% 0W10 0805	1	
R47	0523,430	RES 43R SMD 5% 0W10 0805	1	
R48	0523,104	RES 100K SMD 5% 0W10 0805	1	
R49	0523,472	RES 4K7 SMD 5% 0W10 0805	1	
R50	0523,680	RES 68R SMD 5% 0W10 0805	1	
R51	0523,339	RES 3R3 SMD 5% 0W10 0805	1	
R53	0523,680	RES 68R SMD 5% 0W10 0805	1	
R54	0523,680	RES 68R SMD 5% 0W10 0805	1	
R55	0523,221	RES 220R SMD 5% 0W10 0805	1	
R57	0522,250	RES 332R SMD 1% 0W25 1206	1	
R58	0522,250	RES 332R SMD 1% 0W25 1206	1	
R59	0522,250	RES 332R SMD 1% 0W25 1206	1	
R60	0523,181	RES 180R SMD 5% 0W10 0805	1	
R61	0523,470	RES 47R SMD 5% 0W10 0805	1	
R62	0523,103	RES 10K SMD 5% 0W10 0805	1	
R63	0523,221	RES 220R SMD 5% 0W10 0805	1	
R64	0523,103	RES 10K SMD 5% 0W10 0805	1	

ITEM	PART No.	DESCRIPTION	QTY	Remarks
R65	0523,472	RES 4K7 SMD 5% 0W10 0805	1	
R66	0523,472	RES 4K7 SMD 5% 0W10 0805	1	
R68	0523,339	RES 3R3 SMD 5% 0W10 0805	1	
R69	0523,100	RES 10R SMD 5% 0W10 0805	1	
R70	0523,103	RES 10K SMD 5% 0W10 0805	1	
R71	0523,331	RES 330R SMD 5% 0W10 0805	1	
R72	0523,331	RES 330R SMD 5% 0W10 0805	1	
R73	0523,181	RES 180R SMD 5% 0W10 0805	1	
R74	0523,472	RES 4K7 SMD 5% 0W10 0805	1	
R75	0523,472	RES 4K7 SMD 5% 0W10 0805	1	
R76	0523,102	RES 1K0 SMD 5% 0W10 0805	1	
R77	0523,221	RES 220R SMD 5% 0W10 0805	1	
R78	0523,271	RES 270R SMD 5% 0W10 0805	1	
R79	0523,103	RES 10K SMD 5% 0W10 0805	1	
R80	0523,271	RES 270R SMD 5% 0W10 0805	1	
R81	0523,472	RES 4K7 SMD 5% 0W10 0805	1	
R82	0523,331	RES 330R SMD 5% 0W10 0805	1	
R83	0523,472	RES 4K7 SMD 5% 0W10 0805	1	
R84	0523,472	RES 4K7 SMD 5% 0W10 0805	1	
R85	0523,472	RES 4K7 SMD 5% 0W10 0805	1	
R86	0523,472	RES 4K7 SMD 5% 0W10 0805	1	
R87	0523,472	RES 4K7 SMD 5% 0W10 0805	1	
R88	0523,102	RES 1K0 SMD 5% 0W10 0805	1	
R89	0523,103	RES 10K SMD 5% 0W10 0805	1	
R90	0523,122	RES 1K2 SMD 5% 0W10 0805	1	
R91	0523,472	RES 4K7 SMD 5% 0W10 0805	1	
R92	0523,122	RES 1K2 SMD 5% 0W10 0805	1	
R93	0523,330	RES 33R SMD 5% 0W10 0805	1	
R94	0523,104	RES 100K SMD 5% 0W10 0805	1	
R95	0523,101	RES 100R SMD 5% 0W10 0805	1	
R96	0523,223	RES 22K SMD 5% 0W10 0805	1	
R97	0523,220	RES 22R SMD 5% 0W10 0805	1	
R98	0523,104	RES 100K SMD 5% 0W10 0805	1	
R99	0523,104	RES 100K SMD 5% 0W10 0805	1	
R100	0523,104	RES 100K SMD 5% 0W10 0805	1	
R101	0523,104	RES 100K SMD 5% 0W10 0805	1	
R102	0523,472	RES 4K7 SMD 5% 0W10 0805	1	
R103	0523,680	RES 68R SMD 5% 0W10 0805	1	
R104	0523,105	RES 1M0 SMD 5% 0W10 0805	1	
R106	0523,104	RES 100K SMD 5% 0W10 0805	1	
R107	0523,104	RES 100K SMD 5% 0W10 0805	1	
R108	0523,103	RES 10K SMD 5% 0W10 0805	1	
R109	0523,104	RES 100K SMD 5% 0W10 0805	1	
R110	0523,680	RES 68R SMD 5% 0W10 0805	1	
R111	0523,472	RES 4K7 SMD 5% 0W10 0805	1	
R112	0523,472	RES 4K7 SMD 5% 0W10 0805	1	
R113	0523,220	RES 22R SMD 5% 0W10 0805	1	
R114	0523,331	RES 330R SMD 5% 0W10 0805	1	
R115	0523,680	RES 68R SMD 5% 0W10 0805	1	
R116	0523,472	RES 4K7 SMD 5% 0W10 0805	1	
R117	0523,472	RES 4K7 SMD 5% 0W10 0805	1	
R118	0523,472	RES 4K7 SMD 5% 0W10 0805	1	
R119	0523,103	RES 10K SMD 5% 0W10 0805	1	
R120	0523,330	RES 33R SMD 5% 0W10 0805	1	
R121	0523,472	RES 4K7 SMD 5% 0W10 0805	1	
R122	0523,472	RES 4K7 SMD 5% 0W10 0805	1	
R123	0523,472	RES 4K7 SMD 5% 0W10 0805	1	
R124	0523,680	RES 68R SMD 5% 0W10 0805	1	
R125	0523,104	RES 100K SMD 5% 0W10 0805	1	
R126	0523,472	RES 4K7 SMD 5% 0W10 0805	1	
R127	0522,380	RES 6K81 SMD 1% 0W25 1206	1	
R128	0522,425	RES 18K2 SMD 1% 0W25 1206	1	
R129	0523,561	RES 560R SMD 5% 0W10 0805	1	

ITEM	PART No.	DESCRIPTION	QTY	Remarks
C31	0693.336	CPCTR 33N DCPLR SMD 805	1	
C32	0692.104	CPCTR 100N CML 20% 805	1	
C33	0635.100	CPCTR 10U ALEC 16V RAD	1	
C34	0692.104	CPCTR 100N CML 20% 805	1	
C35	0692.104	CPCTR 100N CML 20% 805	1	
C36	0692.104	CPCTR 100N CML 20% 805	1	
C37	0693.336	CPCTR 33N DCPLR SMD 805	1	
C38	0693.336	CPCTR 33N DCPLR SMD 805	1	
C39	0635.230	CPCTR 220U ALEC 16V RAD	1	
C40	0693.336	CPCTR 33N DCPLR SMD 805	1	
C41	0691.102	CPCTR 1N CML 10% 805	1	
C42	0691.102	CPCTR 1N CML 10% 805	1	
C43	0693.336	CPCTR 33N DCPLR SMD 805	1	
C44	0693.336	CPCTR 33N DCPLR SMD 805	1	
C45	0690.820	CPCTR 82P CML 2% 805	1	
C46	0692.473	CPCTR 47N CML 20% 805	1	
C47	0692.473	CPCTR 47N CML 20% 805	1	
C48	0692.473	CPCTR 47N CML 20% 805	1	
C49	0635.230	CPCTR 220U ALEC 16V RAD	1	
C50	0693.336	CPCTR 33N DCPLR SMD 805	1	
C51	0691.102	CPCTR 1N CML 10% 805	1	
C52	0691.102	CPCTR 1N CML 10% 805	1	
C53	0691.102	CPCTR 1N CML 10% 805	1	
C54	0690.820	CPCTR 82P CML 2% 805	1	
C55	0690.820	CPCTR 82P CML 2% 805	1	
C56	0690.820	CPCTR 82P CML 2% 805	1	
C57	0690.820	CPCTR 82P CML 2% 805	1	
C58	0690.820	CPCTR 82P CML 2% 805	1	
C59	0610.010	CPCTR 10U TANT 10V 20% 5P	1	
C60	0642.103	CPCTR 100U ALEC 25V RAD	1	
C61	0691.102	CPCTR 1N CML 10% 805	1	
C62	0635.470	CPCTR 47U ALEC 16V RAD	1	
C63	0693.336	CPCTR 33N DCPLR SMD 805	1	
C64	0693.336	CPCTR 33N DCPLR SMD 805	1	
C65	0690.120	CPCTR 12P CML 2% 805	1	
C66	0693.336	CPCTR 33N DCPLR SMD 805	1	
C67	0693.336	CPCTR 33N DCPLR SMD 805	1	
C68	0642.103	CPCTR 100U ALEC 25V RAD	1	
C69	0692.473	CPCTR 47N CML 20% 805	1	
C70	0693.336	CPCTR 33N DCPLR SMD 805	1	
C71	0693.336	CPCTR 33N DCPLR SMD 805	1	
C72	0693.336	CPCTR 33N DCPLR SMD 805	1	
C73	0635.470	CPCTR 47U ALEC 16V RAD	1	
C74	0635.047	CPCTR 4U7 ALEC 16V RAD	1	
C75	0691.222	CPCTR 2N2 CML 10% 805	1	
C76	0693.336	CPCTR 33N DCPLR SMD 805	1	
C77	0693.336	CPCTR 33N DCPLR SMD 805	1	
C78	0635.470	CPCTR 47U ALEC 16V RAD	1	
C79	0693.336	CPCTR 33N DCPLR SMD 805	1	
C80	0635.470	CPCTR 47U ALEC 16V RAD	1	
C81	0693.336	CPCTR 33N DCPLR SMD 805	1	
C82	0635.100	CPCTR 10U ALEC 16V RAD	1	
C83	0610.010	CPCTR 10U TANT 10V 20% 5P	1	
C84	0635.100	CPCTR 10U ALEC 16V RAD	1	
C85	0693.336	CPCTR 33N DCPLR SMD 805	1	
C86	0635.470	CPCTR 47U ALEC 16V RAD	1	
C87	0693.336	CPCTR 33N DCPLR SMD 805	1	
C88	0635.100	CPCTR 10U ALEC 16V RAD	1	
C89	0693.336	CPCTR 33N DCPLR SMD 805	1	
C90	0635.100	CPCTR 10U ALEC 16V RAD	1	
C91	0693.336	CPCTR 33N DCPLR SMD 805	1	
C92	0693.336	CPCTR 33N DCPLR SMD 805	1	
C93	0635.100	CPCTR 10U ALEC 16V RAD	1	

ITEM	PART No.	DESCRIPTION	QTY	Remarks
C94	0693.336	CPCTR 33N DCPLR SMD 805	1	
C95	0693.336	CPCTR 33N DCPLR SMD 805	1	
C96	0693.336	CPCTR 33N DCPLR SMD 805	1	
C98	0690.220	CPCTR 22P CML 2% 805	1	
C99	0690.220	CPCTR 22P CML 2% 805	1	
C100	0693.336	CPCTR 33N DCPLR SMD 805	1	
C101	0693.336	CPCTR 33N DCPLR SMD 805	1	
C102	0693.336	CPCTR 33N DCPLR SMD 805	1	
C103	0693.336	CPCTR 33N DCPLR SMD 805	1	
C104	0693.336	CPCTR 33N DCPLR SMD 805	1	
C105	0610.010	CPCTR 10U TANT 10V 20% 5P	1	
C106	0610.047	CPCTR 47U TANT 10V 20% 5P	1	
C107	0693.336	CPCTR 33N DCPLR SMD 805	1	
C108	0690.101	CPCTR 100P CML 2% 805	1	
C109	0693.336	CPCTR 33N DCPLR SMD 805	1	
C110	0635.230	CPCTR 220U ALEC 16V RAD	1	
C111	0690.101	CPCTR 100P CML 2% 805	1	
C112	0690.101	CPCTR 100P CML 2% 805	1	
C113	0690.101	CPCTR 100P CML 2% 805	1	
C114	0690.101	CPCTR 100P CML 2% 805	1	
C115	0690.101	CPCTR 100P CML 2% 805	1	
C116	0693.336	CPCTR 33N DCPLR SMD 805	1	
C117	0693.336	CPCTR 33N DCPLR SMD 805	1	
C118	0635.230	CPCTR 220U ALEC 16V RAD	1	
C119	0693.336	CPCTR 33N DCPLR SMD 805	1	
C120	0610.010	CPCTR 10U TANT 10V 20% 5P	1	
C121	0693.336	CPCTR 33N DCPLR SMD 805	1	
C122	0690.101	CPCTR 100P CML 2% 805	1	
C123	0690.101	CPCTR 100P CML 2% 805	1	
C124	0693.336	CPCTR 33N DCPLR SMD 805	1	
C125	0690.101	CPCTR 100P CML 2% 805	1	
C126	0690.101	CPCTR 100P CML 2% 805	1	
C127	0691.102	CPCTR 1N CML 10% 805	1	
C128	0690.220	CPCTR 22P CML 2% 805	1	
C129	0690.220	CPCTR 22P CML 2% 805	1	
C130	0693.336	CPCTR 33N DCPLR SMD 805	1	
C131	0610.010	CPCTR 10U TANT 10V 20% 5P	1	
C132	0690.101	CPCTR 100P CML 2% 805	1	
C133	0691.102	CPCTR 1N CML 10% 805	1	
C134	0690.101	CPCTR 100P CML 2% 805	1	
C135	0691.102	CPCTR 1N CML 10% 805	1	
C136	0690.101	CPCTR 100P CML 2% 805	1	
C137	0693.336	CPCTR 33N DCPLR SMD 805	1	
C138	0693.336	CPCTR 33N DCPLR SMD 805	1	
C139	0610.010	CPCTR 10U TANT 10V 20% 5P	1	
C140	0693.336	CPCTR 33N DCPLR SMD 805	1	
C141	0691.102	CPCTR 1N CML 10% 805	1	
C142	0691.102	CPCTR 1N CML 10% 805	1	
C143	0691.102	CPCTR 1N CML 10% 805	1	
C144	0691.102	CPCTR 1N CML 10% 805	1	
C145	0691.102	CPCTR 1N CML 10% 805	1	
C146	0693.336	CPCTR 33N DCPLR SMD 805	1	
C147	0693.107	CPCTR 100N DCPLR SMD 805	1	
C148				NOT FITTED
C149	0694.272	CPCTR 2N7 CML 5% 805	1	
C150	0650.155	CPCTR MPSTR 150N 63V 5%	1	
C151	0693.336	CPCTR 33N DCPLR SMD 805	1	
C152	0693.107	CPCTR 100N DCPLR SMD 805	1	
C153	0690.101	CPCTR 100P CML 2% 805	1	
C154	0690.101	CPCTR 100P CML 2% 805	1	
C155	0690.101	CPCTR 100P CML 2% 805	1	
C156	0690.101	CPCTR 100P CML 2% 805	1	
C157	0635.470	CPCTR 47U ALEC 16V RAD	1	

ITEM	PART No.	DESCRIPTION	QTY	Remarks
R1	0523.223	RES 22K SMD 5% 0W10 0805	1	
R2	0523.101	RES 100R SMD 5% 0W10 0805	1	
R3	0523.183	RES 18K SMD 5% 0W10 0805	1	
R4	0523.153	RES 15K SMD 5% 0W10 0805	1	
R5	0522.361	RES 4K32 SMD 1% 0W25 1206	1	
R6	0523.102	RES 1K0 SMD 5% 0W10 0805	1	
R7	0522.147	RES 30R9 SMD 1% 0W25 1206	1	
R8	0522.211	RES 130R SMD 1% 0W25 1206	1	
R9	0523.153	RES 15K SMD 5% 0W10 0805	1	
R10				NOT FITTED
R11	0523.000	RES ZER0R SMD 0W10 0805	1	
R12	0522.308	RES 1K21 SMD 1% 0W25 1206	1	
R13	0522.442	RES 27K4 SMD 1% 0W25 1206	1	
R14	0523.102	RES 1K0 SMD 5% 0W10 0805	1	
R15	0523.102	RES 1K0 SMD 5% 0W10 0805	1	
R16	0523.222	RES 2K2 SMD 5% 0W10 0805	1	
R17	0523.222	RES 2K2 SMD 5% 0W10 0805	1	
R18	0523.122	RES 1K2 SMD 5% 0W10 0805	1	
R19	0522.289	RES 845R SMD 1% 0W25 1206	1	
R20	0523.102	RES 1K0 SMD 5% 0W10 0805	1	
R21	0523.102	RES 1K0 SMD 5% 0W10 0805	1	
R22	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R23	0523.152	RES 1K5 SMD 5% 0W10 0805	1	
R24	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R25	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R26	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R27	0523.680	RES 68R SMD 5% 0W10 0805	1	
R28	0523.221	RES 220R SMD 5% 0W10 0805	1	
R29	0523.680	RES 68R SMD 5% 0W10 0805	1	
R30	0523.330	RES 33R SMD 5% 0W10 0805	1	
R31	0523.680	RES 68R SMD 5% 0W10 0805	1	
R32	0523.330	RES 33R SMD 5% 0W10 0805	1	
R33	0523.680	RES 68R SMD 5% 0W10 0805	1	
R34	0523.330	RES 33R SMD 5% 0W10 0805	1	
R35	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R36	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R37	0523.680	RES 68R SMD 5% 0W10 0805	1	
R38	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R39	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R40	0523.221	RES 220R SMD 5% 0W10 0805	1	
R41	0523.680	RES 68R SMD 5% 0W10 0805	1	
R42	0523.470	RES 47R SMD 5% 0W10 0805	1	
R43	0523.430	RES 43R SMD 5% 0W10 0805	1	
R44	0523.470	RES 47R SMD 5% 0W10 0805	1	
R45	0523.430	RES 43R SMD 5% 0W10 0805	1	
R46	0523.470	RES 47R SMD 5% 0W10 0805	1	
R47	0523.430	RES 43R SMD 5% 0W10 0805	1	
R48	0523.104	RES 100K SMD 5% 0W10 0805	1	
R49	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R50	0523.680	RES 68R SMD 5% 0W10 0805	1	
R51	0523.339	RES 3R3 SMD 5% 0W10 0805	1	
R53	0523.680	RES 68R SMD 5% 0W10 0805	1	
R54	0523.680	RES 68R SMD 5% 0W10 0805	1	
R55	0523.221	RES 220R SMD 5% 0W10 0805	1	
R57	0522.250	RES 332R SMD 1% 0W25 1206	1	
R58	0522.250	RES 332R SMD 1% 0W25 1206	1	
R59	0522.250	RES 332R SMD 1% 0W25 1206	1	
R60	0523.181	RES 180R SMD 5% 0W10 0805	1	
R61	0523.470	RES 47R SMD 5% 0W10 0805	1	
R62	0523.103	RES 10K SMD 5% 0W10 0805	1	
R63	0523.221	RES 220R SMD 5% 0W10 0805	1	
R64	0523.103	RES 10K SMD 5% 0W10 0805	1	
R65	0523.472	RES 4K7 SMD 5% 0W10 0805	1	

ITEM	PART No.	DESCRIPTION	QTY	Remarks
R66	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R68	0523.339	RES 3R3 SMD 5% 0W10 0805	1	
R69	0523.100	RES 10R SMD 5% 0W10 0805	1	
R70	0523.103	RES 10K SMD 5% 0W10 0805	1	
R71	0523.331	RES 330R SMD 5% 0W10 0805	1	
R72	0523.331	RES 330R SMD 5% 0W10 0805	1	
R73	0523.181	RES 180R SMD 5% 0W10 0805	1	
R74	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R75	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R76	0523.102	RES 1K0 SMD 5% 0W10 0805	1	
R77	0523.221	RES 220R SMD 5% 0W10 0805	1	
R78	0523.271	RES 270R SMD 5% 0W10 0805	1	
R79	0523.103	RES 10K SMD 5% 0W10 0805	1	
R80	0523.271	RES 270R SMD 5% 0W10 0805	1	
R81	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R82	0523.331	RES 330R SMD 5% 0W10 0805	1	
R83	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R84	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R85	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R86	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R87	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R88	0523.102	RES 1K0 SMD 5% 0W10 0805	1	
R89	0523.103	RES 10K SMD 5% 0W10 0805	1	
R90	0523.122	RES 1K2 SMD 5% 0W10 0805	1	
R91	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R92	0523.122	RES 1K2 SMD 5% 0W10 0805	1	
R93	0523.330	RES 33R SMD 5% 0W10 0805	1	
R94	0523.104	RES 100K SMD 5% 0W10 0805	1	
R95	0523.101	RES 100R SMD 5% 0W10 0805	1	
R96	0523.223	RES 22K SMD 5% 0W10 0805	1	
R97	0523.220	RES 22R SMD 5% 0W10 0805	1	
R98	0523.104	RES 100K SMD 5% 0W10 0805	1	
R99	0523.104	RES 100K SMD 5% 0W10 0805	1	
R100	0523.104	RES 100K SMD 5% 0W10 0805	1	
R101	0523.104	RES 100K SMD 5% 0W10 0805	1	
R102	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R103	0523.680	RES 68R SMD 5% 0W10 0805	1	
R104	0523.105	RES 1M0 SMD 5% 0W10 0805	1	
R106	0523.104	RES 100K SMD 5% 0W10 0805	1	
R107	0523.104	RES 100K SMD 5% 0W10 0805	1	
R108	0523.103	RES 10K SMD 5% 0W10 0805	1	
R109	0523.104	RES 100K SMD 5% 0W10 0805	1	
R110	0523.680	RES 68R SMD 5% 0W10 0805	1	
R111	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R112	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R113	0523.220	RES 22R SMD 5% 0W10 0805	1	
R114	0523.331	RES 330R SMD 5% 0W10 0805	1	
R115	0523.680	RES 68R SMD 5% 0W10 0805	1	
R116	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R117	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R118	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R119	0523.103	RES 10K SMD 5% 0W10 0805	1	
R120	0523.330	RES 33R SMD 5% 0W10 0805	1	
R121	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R122	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R123	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R124	0523.680	RES 68R SMD 5% 0W10 0805	1	
R125	0523.104	RES 100K SMD 5% 0W10 0805	1	
R126	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R127	0522.380	RES 6K81 SMD 1% 0W25 1206	1	
R128	0522.425	RES 18K2 SMD 1% 0W25 1206	1	
R129	0523.561	RES 560R SMD 5% 0W10 0805	1	
R130	0523.472	RES 4K7 SMD 5% 0W10 0805	1	

ITEM	PART No.	DESCRIPTION	QTY	Remarks
C32	0692.104	CPCTR 100N CML 20% 805	1	
C33	0635.100	CPCTR 10U ALEC 16V RAD	1	
C34	0692.104	CPCTR 100N CML 20% 805	1	
C35	0692.104	CPCTR 100N CML 20% 805	1	
C36	0692.104	CPCTR 100N CML 20% 805	1	
C37	0693.336	CPCTR 33N DCPLR SMD 805	1	
C38	0693.336	CPCTR 33N DCPLR SMD 805	1	
C39	0635.230	CPCTR 220U ALEC 16V RAD	1	
C40	0693.336	CPCTR 33N DCPLR SMD 805	1	
C41	0691.102	CPCTR 1N CML 10% 805	1	
C42	0691.102	CPCTR 1N CML 10% 805	1	
C43	0693.336	CPCTR 33N DCPLR SMD 805	1	
C44	0693.336	CPCTR 33N DCPLR SMD 805	1	
C45	0690.820	CPCTR 82P CML 2% 805	1	
C46	0692.473	CPCTR 47N CML 20% 805	1	
C47	0692.473	CPCTR 47N CML 20% 805	1	
C48	0692.473	CPCTR 47N CML 20% 805	1	
C49	0635.230	CPCTR 220U ALEC 16V RAD	1	
C50	0693.336	CPCTR 33N DCPLR SMD 805	1	
C51	0691.102	CPCTR 1N CML 10% 805	1	
C52	0691.102	CPCTR 1N CML 10% 805	1	
C53	0691.102	CPCTR 1N CML 10% 805	1	
C54	0690.820	CPCTR 82P CML 2% 805	1	
C55	0690.820	CPCTR 82P CML 2% 805	1	
C56	0690.820	CPCTR 82P CML 2% 805	1	
C57	0690.820	CPCTR 82P CML 2% 805	1	
C58	0690.820	CPCTR 82P CML 2% 805	1	
C59	0610.010	CPCTR 10U TANT 10V 20% 5P	1	
C60	0642.103	CPCTR 100U ALEC 25V RAD	1	
C61	0691.102	CPCTR 1N CML 10% 805	1	
C62	0635.470	CPCTR 47U ALEC 16V RAD	1	
C63	0693.336	CPCTR 33N DCPLR SMD 805	1	
C64	0693.336	CPCTR 33N DCPLR SMD 805	1	
C65	0690.120	CPCTR 12P CML 2% 805	1	
C66	0693.336	CPCTR 33N DCPLR SMD 805	1	
C67	0693.336	CPCTR 33N DCPLR SMD 805	1	
C68	0642.103	CPCTR 100U ALEC 25V RAD	1	
C69	0692.473	CPCTR 47N CML 20% 805	1	
C70	0693.336	CPCTR 33N DCPLR SMD 805	1	
C71	0693.336	CPCTR 33N DCPLR SMD 805	1	
C72	0693.336	CPCTR 33N DCPLR SMD 805	1	
C73	0635.470	CPCTR 47U ALEC 16V RAD	1	
C74	0635.047	CPCTR 4U7 ALEC 16V RAD	1	
C75	0691.222	CPCTR 2N2 CML 10% 805	1	
C76	0693.336	CPCTR 33N DCPLR SMD 805	1	
C77	0693.336	CPCTR 33N DCPLR SMD 805	1	
C78	0635.470	CPCTR 47U ALEC 16V RAD	1	
C79	0693.336	CPCTR 33N DCPLR SMD 805	1	
C80	0635.470	CPCTR 47U ALEC 16V RAD	1	
C81	0693.336	CPCTR 33N DCPLR SMD 805	1	
C82	0635.100	CPCTR 10U ALEC 16V RAD	1	
C83	0610.010	CPCTR 10U TANT 10V 20% 5P	1	
C84	0635.100	CPCTR 10U ALEC 16V RAD	1	
C85	0693.336	CPCTR 33N DCPLR SMD 805	1	
C86	0635.470	CPCTR 47U ALEC 16V RAD	1	
C87	0693.336	CPCTR 33N DCPLR SMD 805	1	
C88	0635.100	CPCTR 10U ALEC 16V RAD	1	
C89	0693.336	CPCTR 33N DCPLR SMD 805	1	
C90	0635.100	CPCTR 10U ALEC 16V RAD	1	
C91	0693.336	CPCTR 33N DCPLR SMD 805	1	
C92	0693.336	CPCTR 33N DCPLR SMD 805	1	
C93	0635.100	CPCTR 10U ALEC 16V RAD	1	
C94	0693.336	CPCTR 33N DCPLR SMD 805	1	

ITEM	PART No.	DESCRIPTION	QTY	Remarks
C95	0693.336	CPCTR 33N DCPLR SMD 805	1	
C96	0693.336	CPCTR 33N DCPLR SMD 805	1	
C98	0690.220	CPCTR 22P CML 2% 805	1	
C99	0690.220	CPCTR 22P CML 2% 805	1	
C100	0693.336	CPCTR 33N DCPLR SMD 805	1	
C101	0693.336	CPCTR 33N DCPLR SMD 805	1	
C102	0693.336	CPCTR 33N DCPLR SMD 805	1	
C103	0693.336	CPCTR 33N DCPLR SMD 805	1	
C104	0693.336	CPCTR 33N DCPLR SMD 805	1	
C105	0610.010	CPCTR 10U TANT 10V 20% 5P	1	
C106	0610.047	CPCTR 47U TANT 10V 20% 5P	1	
C107	0693.336	CPCTR 33N DCPLR SMD 805	1	
C108	0690.101	CPCTR 100P CML 2% 805	1	
C109	0693.336	CPCTR 33N DCPLR SMD 805	1	
C110	0635.230	CPCTR 220U ALEC 16V RAD	1	
C111	0690.101	CPCTR 100P CML 2% 805	1	
C112	0690.101	CPCTR 100P CML 2% 805	1	
C113	0690.101	CPCTR 100P CML 2% 805	1	
C114	0690.101	CPCTR 100P CML 2% 805	1	
C115	0690.101	CPCTR 100P CML 2% 805	1	
C116	0693.336	CPCTR 33N DCPLR SMD 805	1	
C117	0693.336	CPCTR 33N DCPLR SMD 805	1	
C118	0635.230	CPCTR 220U ALEC 16V RAD	1	
C119	0693.336	CPCTR 33N DCPLR SMD 805	1	
C120	0610.010	CPCTR 10U TANT 10V 20% 5P	1	
C121	0693.336	CPCTR 33N DCPLR SMD 805	1	
C122	0690.101	CPCTR 100P CML 2% 805	1	
C123	0690.101	CPCTR 100P CML 2% 805	1	
C124	0693.336	CPCTR 33N DCPLR SMD 805	1	
C125	0690.101	CPCTR 100P CML 2% 805	1	
C126	0690.101	CPCTR 100P CML 2% 805	1	
C127	0691.102	CPCTR 1N CML 10% 805	1	
C128	0690.220	CPCTR 22P CML 2% 805	1	
C129	0690.220	CPCTR 22P CML 2% 805	1	
C130	0693.336	CPCTR 33N DCPLR SMD 805	1	
C131	0610.010	CPCTR 10U TANT 10V 20% 5P	1	
C132	0690.101	CPCTR 100P CML 2% 805	1	
C133	0691.102	CPCTR 1N CML 10% 805	1	
C134	0690.101	CPCTR 100P CML 2% 805	1	
C135	0691.102	CPCTR 1N CML 10% 805	1	
C136	0690.101	CPCTR 100P CML 2% 805	1	
C137	0693.336	CPCTR 33N DCPLR SMD 805	1	
C138	0693.336	CPCTR 33N DCPLR SMD 805	1	
C139	0610.010	CPCTR 10U TANT 10V 20% 5P	1	
C140	0693.336	CPCTR 33N DCPLR SMD 805	1	
C141	0691.102	CPCTR 1N CML 10% 805	1	
C142	0691.102	CPCTR 1N CML 10% 805	1	
C143	0691.102	CPCTR 1N CML 10% 805	1	
C144	0691.102	CPCTR 1N CML 10% 805	1	
C145	0691.102	CPCTR 1N CML 10% 805	1	
C146	0693.336	CPCTR 33N DCPLR SMD 805	1	
C147	0693.107	CPCTR 100N DCPLR SMD 805	1	
C148				NOT FITTED
C149	0694.272	CPCTR 2N7 CML 5% 805	1	
C150	0650.155	CPCTR MPSTR 150N 63V 5%	1	
C151	0693.336	CPCTR 33N DCPLR SMD 805	1	
C152	0693.107	CPCTR 100N DCPLR SMD 805	1	
C153	0690.101	CPCTR 100P CML 2% 805	1	
C154	0690.101	CPCTR 100P CML 2% 805	1	
C155	0690.101	CPCTR 100P CML 2% 805	1	
C156	0690.101	CPCTR 100P CML 2% 805	1	
C157	0635.470	CPCTR 47U ALEC 16V RAD	1	
C158	0693.107	CPCTR 100N DCPLR SMD 805	1	

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ITEM	PART No.	DESCRIPTION	QTY	Remarks
R633	0523,330	RES 33R SMD 5% 0W10 0805	1	
R634	0523,330	RES 33R SMD 5% 0W10 0805	1	
R700				NOT FITTED
RP2	0576,680	RESNET 68RX8 5% 16P SOIC	1	
RP4	0576,680	RESNET 68RX8 5% 16P SOIC	1	
RP5	0576,680	RESNET 68RX8 5% 16P SOIC	1	
RP6	0576,680	RESNET 68RX8 5% 16P SOIC	1	
RP7	0576,680	RESNET 68RX8 5% 16P SOIC	1	
RP8	0576,330	RESNET 33RX8 5% 16P SOIC	1	
RP9	0576,330	RESNET 33RX8 5% 16P SOIC	1	
SK1	0800,995	CONRD 15WSKT RA HD+RFI+L	1	
SK4	0800,644	CONR 3, 5MM RA PCB JKSKT	1	
SK5	0800,487	CONR 17W SKT HSNG .1 PCB	1	
SK7	0800,486	CONR 5W SKT HSNG 0.1 PCB	1	
SK8	0800,486	CONR 5W SKT HSNG 0.1 PCB	1	
SK9	0800,487	CONR 17W SKT HSNG .1 PCB	1	
SK10	0898,005	CONRD 25W SKT RAPCB+RFI+L	1	
SK11	0800,486	CONR 5W SKT HSNG 0.1 PCB	1	
SK12	0800,486	CONR 5W SKT HSNG 0.1 PCB	1	
SK13	0800,487	CONR 17W SKT HSNG .1 PCB	1	
SK15	0800,490	CONR 12W SKT HSNG .1 PCB	1	
SK16	0800,489	CONR 15W SKT HSNG .1 PCB	1	
SK18	0800,270	CONRD 15W SKT RAPCB+RFI+L	1	
SK19	0800,491	CONR 7W SKT HSNG 0.1 PCB	1	
SK100	0800,923	SKT 6W MINDIN RA PCB RFI	1	
X2	0821,327	XTAL 32.768KHZ CC 0.05P	1	
X4	0820,721	XTAL OSC 72MHZ CMOS DIL	1	
X5	0820,253	XTAL 25.175MHZ HC49 5, 08H	1	
X7	0820,240	XTAL 24.00MHZ HC18/V CAN	1	
X100				NOT FITTED

ITEM	PART No.	DESCRIPTION	QTY	Remarks
	0094,000/A	Final Assembly Drg.		1 Per Batch
	0194,015	Mains Cable Assy	1	
	0192,082	Speaker Cable Assembly	1	
	0194,078	Earth Cable Assy	1	
	0194,003	C (1M) Main PCB Assy	1	
	0194,011	UK National K/B Variant	1	
	0494,042	Adelaide Keyboard Label	1	
	0494,043	Adelaide Base Label	1	
	0494,044	Adelaide Mains Label	1	
	0494,046	Adelaide PSU Label	1	
	0294,080	Battery Insulation Pad	1	
	0294,060	Lower Metal	1	
	0294,061	Upper Metal	1	
	0294,062	User Access Lid	1	
	0294,064	Plastic Case Upper	1	
	0294,065	Plastic Case Lower	1	
	0294,066	Rear Aperture Cover	1	
	0294,069	RAM Upgrade Access Lid	1	
	0294,070	Rear EMC Blanking Gasket	1	
	0294,073	PCB Insulation Sheet	1	
	0194,075	Disc Drive Cable Assy	1	
	0194,076	Disc Drive Pwr Cable Assy	1	
	0800,996	Conrd 4-40UNC ScwLk 5L	2	
	0800,997	Wshr 4-40UNC Int Sprl Snp	10	
	0805,705	Cap 5mmD Plstc Grey	1	
	0880,024	Grmt Cbl Rnd 7, 4Dx4T Blk	1	
	0882,120	Scw M3x10 Skt Button Hd	2	
	0882,121	Scw M3x6 Pan HD Posi	4	
	0882,129	Scw M3x6 Skt Cap Hd	1	
	0882,717	Scw 3x6mm Pan Posi PLST45	1	
	0882,902	Nut M3 Stl Full Z/Pas	2	
	0890,013	Foot S/A Rubr 8Dx2.5Hmm	2	
	0940,008	Adh Hot Melt Plst UL94V-0	A/R	
	0882,972	Wshr M3 Sprl lt Stl	2	
	0882,718	Scw 3x8mm Pan Posi PLST45	4	
	0912,022	Floppy Drive 1/2MB 3.5	1	

ITEM	PART No.	DESCRIPTION	QTY	Remarks
C147	0693.107	CPCTR 100N DCPLR SMD 805	1	
C148	0650.472	CPCTR MPSTR 4N7 63V 10%	1	
C149	0694.272	CPCTR 2N7 CML 5% 805	1	
C150	0650.155	CPCTR MPSTR 150N 63V 5%	1	
C151	0693.336	CPCTR 33N DCPLR SMD 805	1	
C152	0693.107	CPCTR 100N DCPLR SMD 805	1	
C153	0690.101	CPCTR 100P CML 2% 805	1	
C154	0690.101	CPCTR 100P CML 2% 805	1	
C155	0690.101	CPCTR 100P CML 2% 805	1	
C156	0690.101	CPCTR 100P CML 2% 805	1	
C157	0635.470	CPCTR 47U ALEC 16V RAD	1	
C158	0693.107	CPCTR 100N DCPLR SMD 805	1	
C159	0621.470	CPCTR 47U ALEC 10V AX	1	
C160	0693.107	CPCTR 100N DCPLR SMD 805	1	
C161	0635.230	CPCTR 220U ALEC 16V RAD	1	
C163	0693.107	CPCTR 100N DCPLR SMD 805	1	
C164	0621.470	CPCTR 47U ALEC 10V AX	1	
C165	0621.470	CPCTR 47U ALEC 10V AX	1	
C166	0693.107	CPCTR 100N DCPLR SMD 805	1	
C216	0693.336	CPCTR 33N DCPLR SMD 805	1	
C222	0693.336	CPCTR 33N DCPLR SMD 805	1	
C223	0693.336	CPCTR 33N DCPLR SMD 805	1	
C225	0693.336	CPCTR 33N DCPLR SMD 805	1	
C226	0693.336	CPCTR 33N DCPLR SMD 805	1	
C227	0693.336	CPCTR 33N DCPLR SMD 805	1	
C300	0693.107	CPCTR 100N DCPLR SMD 805	1	
C301	0693.107	CPCTR 100N DCPLR SMD 805	1	
C302	0693.107	CPCTR 100N DCPLR SMD 805	1	
C303	0693.107	CPCTR 100N DCPLR SMD 805	1	
C304	0690.120	CPCTR 12P CML 2% 805	1	
D10	0796.000	DIODE SI BAS16 SOT23	1	
D11	0796.001	DIODE SI BAV99 SOT23	1	
D12	0796.000	DIODE SI BAS16 SOT23	1	
D13	0796.000	DIODE SI BAS16 SOT23	1	
D14	0796.001	DIODE SI BAV99 SOT23	1	
D15	0796.000	DIODE SI BAS16 SOT23	1	
D16	0796.000	DIODE SI BAS16 SOT23	1	
D17	0796.001	DIODE SI BAV99 SOT23	1	
D18	0796.000	DIODE SI BAS16 SOT23	1	
D19	0796.000	DIODE SI BAS16 SOT23	1	
D20	0796.000	DIODE SI BAS16 SOT23	1	
FS1	0815.305	FUSE 2AO F AX LEAD LBC	1	
FS4	0815.503	FUSE 250MA F 63VAC SMD	1	
IC1	0758.032	IC 74AC32 CMOS 14P SOIC	1	
IC5	0708.584	IC 8583 RTC RAM 8P SOIC	1	
IC8	0762.014	IC 74HCT14 CMOS 14P SOIC	1	
IC10	0771.386	IC LM386 AUDIO AMP 8PSOIC	1	
IC12	0702.401	IC DS2400 ID 3W SIL 0.1	1	
IC13	0294.030	IC ARM250 160P PQFP	1	
IC16	0735.489	IC 1489A RS232 RX 14SOIC	1	
IC17	0296.061	RISC OS GREEN (X16) ROM1	1	
IC18	0296.062	RISC OS GREEN (X16) ROM2	1	
IC19	0735.488	IC 1488 RS232 DRVR 14SOIC	1	
IC20	0761.138	IC 74HC138 CMOS 16P SOIC	1	
IC21	0704.128	IC DRAM 256KX16 80NS SOJ	1	
IC22	0704.128	IC DRAM 256KX16 80NS SOJ	1	
IC23	0735.489	IC 1489A RS232 RX 14SOIC	1	
IC24	0701.711	IC 82C711 UCNTRLR 100QFP	1	
IC26	0762.014	IC 74HCT14 CMOS 14P SOIC	1	
IC30	0758.139	IC 74AC139 CMOS 16P SOIC	1	
IC31	0704.128	IC DRAM 256KX16 80NS SOJ	1	
IC32	0704.128	IC DRAM 256KX16 80NS SOJ	1	
IC33				NOT FITTED

ITEM	PART No.	DESCRIPTION	QTY	Remarks
IC34				NOT FITTED
IC35				NOT FITTED
IC36				NOT FITTED
IC37	0761.075	IC 74HC75 CMOS 16P SOIC	1	
IC45	0762.573	IC 74HCT573 CMOS 20P SOIC	1	
IC46	0761.573	IC 74HC573 CMOS 20P SOIC	1	
IC500	0762.245	IC 74HCT245 CMOS 20P SOIC	1	
IM2	0194.007	AUDIO HYBRID 17P	1	
L10	0860.012	CHOKE RF 2U2H AX Q30	1	
L11	0860.503	IND CHK 1A 80R@100MHZ SMD	1	
L12	0860.005	CHOKE RF 33UH AX Q45	1	
L13	0860.503	IND CHK 1A 80R@100MHZ SMD	1	
L14	0860.503	IND CHK 1A 80R@100MHZ SMD	1	
L15	0860.503	IND CHK 1A 80R@100MHZ SMD	1	
L16	0860.503	IND CHK 1A 80R@100MHZ SMD	1	
L17	0860.503	IND CHK 1A 80R@100MHZ SMD	1	
LK6	0800.876	CONR 8W WAFR 0.1 2ROW ST	1	
LK11				NOT FITTED
LK13				NOT FITTED
LK15				NOT FITTED
LK16	0800.450	CONR 6W WAFR 0.1 ST PCB	1	
LK18	0800.050	CONR 2W WAFR 0.1 ST PCB	1	
LK19	0800.458	CONR 2W WAFR 0.1 ST LK	1	
LK30				NOT FITTED
LK31	0800.051	CONR 3W WAFR 0.1 ST PCB	1	
LK32	0800.051	CONR 3W WAFR 0.1 ST PCB	1	
PL8	0898.003	CONRD 9WPLG RA PCB+RFI+L	1	
PL9	0898.002	CONR 34W BOX IDC LP ST	1	
PL25	0898.019	CONR 40W BOX IDC LP ST	1	
PL26	0800.506	CONR 4W PLG ST PCB D/PWR	1	
PL27				NOT FITTED
PL28				NOT FITTED
PL29				NOT FITTED
PL30				NOT FITTED
Q3	0784.849	TRANS BC849C NPN SOT23	1	
Q4	0784.906	TRANS SM3906 PNP SOT23	1	
Q7	0784.906	TRANS SM3906 PNP SOT23	1	
Q9	0784.906	TRANS SM3906 PNP SOT23	1	
Q10	0784.906	TRANS SM3906 PNP SOT23	1	
R1	0523.223	RES 22K SMD 5% 0W10 0805	1	
R2	0523.101	RES 100R SMD 5% 0W10 0805	1	
R3	0521.103	RES 10K SMD 5% 0W25 1206	1	
R4	0523.820	RES 82R SMD 5% 0W10 0805	1	
R5	0523.330	RES 33R SMD 5% 0W10 0805	1	
R6	0523.820	RES 82R SMD 5% 0W10 0805	1	
R7	0523.330	RES 33R SMD 5% 0W10 0805	1	
R8	0523.103	RES 10K SMD 5% 0W10 0805	1	
R9	0523.330	RES 33R SMD 5% 0W10 0805	1	
R10	0521.122	RES 1K2 SMD 5% 0W25 1206	1	
R16	0523.222	RES 2K2 SMD 5% 0W10 0805	1	
R17	0523.222	RES 2K2 SMD 5% 0W10 0805	1	
R18	0523.122	RES 1K2 SMD 5% 0W10 0805	1	
R22	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R23	0523.152	RES 1K5 SMD 5% 0W10 0805	1	
R24	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R25	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R26	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R27	0523.680	RES 68R SMD 5% 0W10 0805	1	
R28	0523.201	RES 200R SMD 5% 0W10 0805	1	
R35	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R36	0523.472	RES 4K7 SMD 5% 0W10 0805	1	
R37	0523.680	RES 68R SMD 5% 0W10 0805	1	
R38	0523.472	RES 4K7 SMD 5% 0W10 0805	1	

Skt	Fitted	Function/Specification			
SK18	Yes	Network connector			
		Pin		Signal	
			Econet	10b2	10bT
		1	Clock+	CD-	nc
		2	GND	GND	GND
		3	DATA+	TX+	nc
		4	nc	nc	RXI+
		5	nc	RX+	nc
		6	nc	nc	TXOD-
		7	nc	nc	TXO+
		8	nc	nc	TXO-
		9	Clock-	CD+	nc
		10	DATA-	TX-	nc
		11	nc	nc	RXI-
		12	nc	RX-	nc
		13	nc	VCC	VCC
		14	nc	nc	TXOD+
		15	nc	IDC	IDC
SK19	Yes	Network mid address			
		Pin	Signal		
		1	LA11		
		2	LA10		
		3	LA9		
		4	0V		
		5	LA8		
		6	LA7		
		7	LA6		
SK100	Yes	Keyboard connector.			
		Pin	Signal		
		1	RESET		
		2	nc		
		3	0V		
		4	5V		
		5	Serial data in		
		6	Serial data out		

Links

Link	fitted to? 3010	fitted to? 3020	fitted to? 4000	Description
LK1	✓	✓	✗	5V, link PSU to computer logic, tinned copper wire link
LK1	✗	✗	✓	Link for joystick interface
LK2	✓	✓	✗	12V, test link for low power 12V to audio and SCART
LK2	✗	✗	✓	Test connector
LK3	✓	✓	✗	If fitted, used to connect remote serial keyboard for testing
LK4	✓	✓	✗	Keyboard ID 3
LK5	✓	✓	✗	Keyboard ID 2
LK 6	✓	✓	✓	Genlock, refer to schematic
LK 7	✓	✓	✗	5Vsupply to keyboard membrane, supply to LEDs
LK 8	✓	✓	✗	Keyboard ID 1
LK9	✓	✓	✗	Keyboard ID 5
LK10	✓	✓	✗	Keyboard ID 4
LK11	✓	✓	✓	Tracked on PCB, connects FDC analogue ground to system ground (0v)
LK12	✓	✓	✗	Keyboard ID 0 tracked on PCB
LK13	✗	✓	✗	Test point for joystick 1/2 selector (1=joystick 1)
LK14	✗	✗	✓	1-2 selects local, 2-3 selects remote keyboard serial input data
LK15	✓	✓	✓	Tracked on PCB, connects video ground to system ground (0v)
LK16	✓	✓	✗	Test connector, Acorn diagnostic test box
LK17				NONE
LK18	✓	✓	✓	FDC pre-compensation mode, selects alternative pre-compensation modes
LK19	✓	✓	✓	Connector for internal mono speaker
LK20	✓	✗	✗	DRAM memory sizing (A3010). See below
LK21	✓	✗	✗	DRAM memory sizing (A3010). See below
LK22	✓	✗	✗	DRAM memory sizing (A3010). See below
LK30	✓	✓	✓	Tracked on PCB, connects audio ground to system ground (0v)
LK31	✗	✓	✓	DRAM memory sizing (A3020, A4000). See below
LK32	✗	✓	✓	DRAM memory sizing (A3020, A4000). See below

DRAM link options (A3020, A4000)

	LK31	LK32
2MB	1-2	2-3
4MB	2-3	1-2

DRAM link options (A3010)

	LK20	LK21	LK22
1MB	1-2	NF	1-2
2MB	1-2	NF	2-3
4MB	3-2	1-2	NF

Plugs

Plug	Fitted	Function/Specification
PL1	Yes	**Mains I/P (A30X0)** P1 Neutral P2 Live **DC power (A4000)** P1 5V P2 0V P3 −12V P4 +12V
PL5	No	Floppy disc power connector P1 +5V P2 0V P3 0V P4 nc
PL6	Yes	Joystick ports 1 and 2
PL7	Yes	Joystick ports 1 and 2 Pin Signal Pin Signal 1 UP 6 FIRE 2 DOWN 7 +5V (fused[†]) 3 LEFT 8 GND 4 RIGHT 9 nc 5 nc
PL8	Yes	Serial Port. (IBM PC-AT Pinout) 9-way D-type plug Pin Signal Pin Signal 1 DCD 6 DSR 2 RxD 7 RTS 3 TxD 8 CTS 4 DTR 9 RI 5 0V
PL9	Yes	Floppy Disc Drive Data Connector. This is a 34-way Box Header containing all the signals required by the internal floppy disc drive Pin Signal Pin Signal 2 MODE SELECT 20 STEP 4 nc 22 WRITE DATA 6 nc 24 WRITE GATE 8 INDEX 26 TRACK0 10 DRIVE SELECT 0 28 WRITE PROTECT 12 nc 30 READ DATA 14 nc 32 SIDE1 16 MOTORON 34 DISC CHANGE 18 DIRIN 3,5,7,9,11,13,15,17,19,21,23,25,27,29,31,33 all 0V
PL10	Yes	A3020 IDE 44-way connector. See *Table 1.13* on page 1-11
PL11	Yes	A4000 IDE 40-way connector. See *Table 1.13* on page 1-11
		† See *Fuse ratings and power allowances* on page 1-18

Power supply

A4000 computers use a separate cased power supply sub assembly, which is a primary switched mode design rated for about 24W.

A3010 and A3020 models each use a PCB mounted design, based on a transformer and low voltage integrated circuit switch mode power supply for the main system 5V. The 5V regulator of the A3010 uses a different IC to the higher rated design of the A3020. Otherwise the two computers have the same general PSU design.

The remainder of this section only refers to the A3010 and A3020 computers.

A transformer steps down the mains voltage to two isolated windings. The main secondary is full wave rectified and filtered to give 23V (240V i/p) measured at TP1. A DC to DC converter drops the 23V down to a regulated 5V0 output. Also run off the 23V line is a regulated low power 12V supply. The second low power secondary winding is centre tapped. After full wave rectification and filtering it gives nominal +12V (TP2) and -12V (TP3) at 50mA. (240V i/p).

The +12V and -12V rails are protected against short circuit faults by fuses. A thermal fuse is built into the transformer; it should not be bypassed. If the thermal fuse fails, due to overload or some other abuse, a new transformer must be installed (after any other faults are repaired). A fuse is included in the mains voltage circuit to comply with international safety standards.

The DC to DC converter circuit is based on the L4960 (A3010) or L4974 (A3020) step down switcher IC, which operates at about 100KHz. The IC includes soft start, thermal and short circuit protection.

To ensure compliance with the SCART interface a regulated 12V feed is needed. This is also used to power the audio hybrid op-amp. Link LK2 can be used to isolate the regulated 12V line for testing. The unregulated ±12V rails are used by the RS232 interface circuits.

The design of the power supply of each product is adequate for the upgrade options set out in the product description. It should be born in mind that attempts to extract excessive power from the PSU will put at risk the general reliability of the computer. Just because a specimen computer can apparently power an exotic upgrade does not mean that other units will, inevitably there is a large variation in the current limit of the DC to DC converter IC. Just because a level of power can be extracted does not mean that the unit will not over heat or suffer premature component failure if that level of power is taken continuously by an extravagant upgrade. Much of the apparent spare capacity is to support disc drive start up surges. The computer design does not allow for continuous operation at maximum current levels.

Fuse ratings and power allowances

The secondary fuses fitted have been selected to provide fault protection and their values must not be used as an indication of acceptable accessory power consumption.

The maximum currents on various interfaces are listed below. If these values are exceeded the machine will suffer from intermittent faults.

Mouse   80mA

Total joystick   50mA

Video   50mA

Expansion connector 100mA internal, plus 500mA external, total of 600mA.

Note: an increase in the internal current will exceed the specified internal heating allowance.

Network expansion (not A3010)

Expansion connector 300mA internal, plus 150mA external, total of 450mA. Refer to the *Network Expansion Specification* (Acorn Part No. 0472,206).

ARM250 pin out

The following table lists the pin number and signal name for each of the 160 pins.

The table also includes details of the type of input/output of each pin.

Table 1.18: Host to keyboard commands

Mnemonic	Function
HRST	Reset keyboard.
LEDS	Turns key cap LEDs on/off. A three bit field indicates gives the LEDs state. Logic 1 is ON, logic 0 is OFF. D0 controls CAPS LOCK D1 controls NUM LOCK D2 controls SCROLL LOCK
ROM	Request mouse position (X,Y counts).
RQID	Request keyboard identification code.
	The computer is manufactured with a 6-bit code to identify the keyboard type to the ARM250.
	Upon receipt of RQID the keyboard controller transmits KBID to the ARM250.
PRST	Reserved for future use, the keyboard controller currently ignores this command.
RQPD	For future use. The keyboard controller will encode the four data bits into the PDAT code data field and then send PDAT to the ARM250.

Table 1.19: Summary of keyboard serial protocol codes

Mnemonic	msb	lsb	Comments
HRST	1111	1111	1-byte command, keyboard reset.
RAK1	1111	1110	1-byte response in reset protocol.
RAK2	1111	1101	1-byte response in reset protocol.
RQPD	0100	xxxx	1-byte from ARM250, encodes four bits of data.
PDAT	1110	xxxx	1-byte from keyboard, echoes four data bits of RQPD.
RQID	0010	0000	1-byte ARM250 request for keyboard ID.
KBID	10xx	xxxx	1-byte from keyboard encoding keyboard ID.
KDDA	1100	xxxx	New key down data. Encoded row (first byte) and column (second byte) numbers.
KUDA	1101	xxxx	Encoded row (first byte) and column (second byte) numbers for a new key up.
RQMP	0010	0010	1-byte ARM250 request for mouse data.
MDAT	0xxx	xxxx	Encoded mouse count, X (byte1) then Y (byte2).
BACK	0011	1111	ACK for first keyboard data byte pair.
NACK	0011	0000	Last data byte ACK
SACK	0011	0001	Last data byte ACK.
MACK	0011	0010	Last data byte ACK.
SMAK	0011	0011	Last data byte ACK.
LEDS	0000	0xxx	bit flag to turn LED(s) on/off.
PRST	0010	0001	From ARM250, 1-byte command, does nothing.

x is a data bit in the Code; e.g. xxxx is a four bit data field

Key codes

The keyboard identifies each key by its row and column address in the keyboard matrix. Row and column codes are appended to the key up or down prefix to form the complete key code.

For example, Q key down – the complete row code is 11000010 (&C2), the column code is 11000111 (&C7).

Table 1.20 on page 1-17 gives the key codes and legends for the UK keyboard.

Note: Eight keys have N-key roll over. The operating system is responsible for implementing two-key rollover, therefore the keyboard controller transmits all key changes (when enabled). The keyboard does not operate any auto-repeat; only one down code is sent, at the start of the key down period.

Data protocol

Data transmissions from the keyboard are either one or two bytes in length. Each byte sent by the keyboard must be acknowledged. The keyboard will not transmit another byte until the previous byte has been acknowledged, unless it is the HRST (HardReSeT) code indicating that a power on or user reset occurred or that a protocol error occurred; see paragraph below.

Reset protocol

The keyboard restarts when it receives a HRST code from the ARM250. The keyboard can initiate a restart by sending a HRST code to the ARM250, which will then send back HRST to command a restart.

The keyboard sends HRST to the ARM250 if

* a power-on reset occurs

* a user reset occurs

* a protocol error is detected.

After sending HRST, the keyboard waits for a HRST code. Any non-HRST code received causes the keyboard to resend HRST.

The program below gives a pseudo program which illustrates the reset sequence/protocol.

Pseudo program for keyboard reset

```
START reset
ONerror Send HRST code to ARM250 then wait
for code from ARM250.
IF code = HRST THEN restart ELSE error
ONrestart   clear mouse position counters
            set mouse mode to data only in
response to an RMPS request.
            stop key matrix scanning and set
key flags to up
            send HRST code to ARM250
Wait for next code
IF code = RAK1 THEN send RAK1 to ARM250
ELSE    error
Wait for next code
IF code = RAK2 THEN send RAK2 to ARM250
ELSE    error
```

```
Wait for next code
IF code = SMAK THEN mouse mode to send if not
          zero and enable key scan
ELSE   IF code = SACK THEN enable key scanning
ELSE   IF code = MACK THEN set mouse mode to
          send when not zero
ELSE   IF code = NACK THEN do nothing
ELSE    error
END reset
```

Note: The on/off state of the LEDs is not changed by a reset event, hence the LED state is not defined at power on. The ARM250 is responsible for selecting the LED status. After the reset sequence, key scanning will only be enabled if a scan enable acknowledged (SACK or SMAK) was received from the ARM250.

Table 1.15: Reset sequencing summary

Dirⁿ	Code	Expected reply	Wrong reply (Sender)	Timeout (Sender)	Un-expected (Receiver)
To K'b'd	Hard reset	Hard reset	Resend	Resend	Hard reset
To ARM	Hard reset	Reset Ack 1	Resend	Nothing	Hard reset
To K'b'd	Reset Ack 1	Reset Ack 1	Hard reset	Hard reset	Hard reset
To ARM	Reset Ack 1	Reset Ack 2	Nothing	Nothing	Hard reset
To K'b'd	Reset Ack 2	Reset Ack 2	Hard reset	Hard reset	Hard reset

Data transmission

When enabled for scanning, the keyboard controller informs the ARM250 of any new key down or new key up by sending a two byte code incorporating the key row and column addresses. The first byte gives the row and is acknowledged by a byte acknowledge (BACK) code from the ARM250. If BACK was not the acknowledge code, the error process (ON error) is entered. If the BACK code was received, the keyboard controller sends the column information and waits for an acknowledge. If either a NACK, SACK, MACK or SMAK acknowledge code is received, the keyboard controller continues by processing the ACK type and selecting the mouse and scan modes implied. If the character received as the second byte acknowledge was not one of NACK/MACK/SACK/SMAK, the error process is entered.

Mouse data

Mouse data is sent by the keyboard controller if requested by a RQMP request from the ARM250, or if a SMAK or MACK has enabled transmission of non-zero values. Two bytes are used for mouse position data. Byte one encodes the accumulated movement along the X axis, while byte two gives Y axis movement.

Both X and Y counts must be transferred to temporary registers when data transmission is triggered, so that accumulation of further mouse movement can occur. The X and Y counters are cleared upon each transfer to the transmit holding registers. Therefore, the count values are relative to the last values sent. The ARM250 acknowledges the first byte (Xcount) with a BACK code

values to match the type of monitor attached. So for the majority of monitors a stable picture will always be present when the system is first used. And it should not be necessary to change the configuration settings to make the full range of screen modes, supported by the monitor, available.

Table 1.14 on page 1-12 gives the values used in AUTO configure mode for different types of monitor. The values are not written back to CMOS RAM. AUTO configuration will persist until the user changes it using *configure or the !Configure application, in the ROM Apps directory.

See the *RISC OS 3 User and Applications Guide* for a full description of setting the computer's configuration memory.

Many multi-frequency monitors have their ID bits set to Super VGA (SVGA). As these are more common than SVGA only monitors, the automatic sensing system selects multiscan modes when a SVGA monitor is detected. For those users who wish to use a genuine SVGA monitor, the system should be configured to SVGA (MonitorType 4) using the !Configure application. Some multi-frequency monitors have their ID bits set to VGA. Use !Configure to select Multiscan (MonitorType 1) to get all the Multiscan modes.

Appendix A –Monitor adaptor cables contains details of how to make cables and adaptors to connect monitors that do not have a 15-way VGA connector. These adaptors take advantage of the automatic sensing scheme.

Identity bit

The monitor types supported are listed below. A scheme to sense automatically the type of monitor connected to the computer is implemented in the operating system program. This scheme ensures that the user gets a picture regardless of the monitor type connected to the computer and that, if possible, the complete range of modes for that monitor type is made available.

Table 1.14: Monitor sensing

Monitor	ID settings				'Auto' mode default settings		
	D3	D2	D1	D0	Mode	Mon. type	Sync
Mono VGA	†	1	0	1	27	3	separate
Colour VGA	†	1	1	0	27	3	separate
Colour SVGA and Multifrequency	†	0	1	0	27	1	separate
Multifrequency (comp. sync)	†	HS	1	1	27	1	composite (Hsync to ID2)
UHF TV/SCART	†	1	1	HS	12	0	composite

† - undefined   HS - horizontal sync pulse

Note 1: If none of the ID bits are connected to 0V, the software will default to TV frequency modes.

Note 2: The HS to ID bit connections are Acorn-specific, and are made in the monitor cable.

TV colour encoder (A3010 ONLY)

The RGB current sources driving the colour encoder each generate a nominal 0.7V peak signal across a terminating 75Ω resistor. The RGB signals are capacitively coupled to the encoder IC inputs. A Sony CXA1145 encodes the RGB video and TTL composite sync signal into a colour video signal (i.e. video + composite sync + chroma (colour) signal). The chroma signal can be set to PAL or NTSC formats. For PAL I (UK), a 4.4336 MHz crystal is used in the CXA1145 oscillator circuit. A trimmer capacitor allows fine tuning of the carrier frequency. In practice the frequency is not critical for colour generation in a TV, but the chroma frequency does beat/interfere with high frequency components in the luma signal. Careful trimming of the oscillator can reduce the subjective effects of the beat frequency.

The chroma signal is bandpass-filtered before it is mixed with the delayed luma signal. The luma delay is chosen to match the chroma signal delay through the bandpass filter. The complete encoded signal is terminated with a two-resistor attenuator, which matches the signal level to the UHF modulator. A separate bias chain ensures the correct DC level is present at the modulator input. The modulator is a standard video plus sound unit which generates a low power UHF signal on channel 35 (UK model).

ARM250 sound system hardware

VIDC1a, in the ARM250, contains the sound system logic and digital to analogue converters. A four-word FIFO buffers 16 8-bit sound samples read in by DMA from main memory. A new DMA request is issued when the last byte is read from the FIFO. Sound data bytes are read out at a constant rate, set by programming the 8-bit Audio Frequency Register in VIDC1a. The frequency register may be programmed to give sound sample intervals between 3 and 255μs, in 1μs increments.

The sample data bytes are encoded as sign plus 7-bit logarithmic magnitude. An exponential digital to analogue converter followed by de-glitching and sign-bit steering, puts out a current at one of the four audio output pins. The current impulses are integrated/low pass filtered in an audio hybrid circuit.

VIDC also contains a bank of eight stereo image position registers, each of three bits. These eight registers are sequenced through at the sample rate, with the first register synchronised to the first byte clocked out of the FIFO. Every sample time is divided into eight time slots. The 3-bit image value programmed for each register is used to pulse width modulate the output current, between the LEFT and RIGHT audio outputs, in multiples of time slot subdivisions. This allows the sound signal to be spatially positioned to one of seven stereo image locations.

WRITE PROTECT

Logic 0 indicates that a write-protected disc has been inserted.

READ DATA

MFM data read from the disc.

DISC CHANGE

This signal indicates to the system when a disc has been removed from the drive. It is set logic 0 at power-on and when the disc is removed from the drive. It is reset to logic 1 by a STEP pulse when a disc is inserted and the drive is selected.

Drive Performance

The following table shows the characteristics of the floppy disc drive.

Table 1.10: Drive characteristics

Capacity	1MB/2MB (unformatted)
Track to track step rate	3ms
Seek settle time	15ms
Write to read recovery	1.5ms (1MB), 700ms (2MB)
Power-on to drive ready	1000ms
Motor-on to drive ready	500ms
Power supply	+5Vdc (5%)
Maximum continuous power (typical)	2W (read) 2.3W (write)
Error rates:	
Recoverable read errors	1 in 10^9
Non-recoverable read errors	1 in 10^{12}
Seek errors	1 in 10^6

I/P signal levels

Logic 0	0.8V max
Logic 1	2.0V min

O/P signal levels

1KΩ load to +5V

Logic 0	0.4V max
Logic 1	2.4V min to 5.25V max

Power connector PL5 (A30X0 ONLY)

The power connector is a 4-pin, 2.5mm pitch type.

Table 1.11: Power connector pin assignment

Pin	Signal
1	+5V
2	0V
3	0V
4	nc

Data interface connector PL9

The floppy disc interface is designed to support an AT style disc drive. The floppy disc drive attaches to a 34-way, 2-row, 0.1" pitch connector.

This connector will accept

• standard PC-AT 1MB/2MB drives
• PC-XT drives that automatically sense media type from the disc cut-outs.

Table 1.12: Data interface connector pin assignment

Pin	Signal	Pin	Signal	Dir.
1	nc	2	MODE SELECT (1MB/2MB)	O
3	0V	4	nc	-
5	0V	6	nc	-
7	0V	8	INDEX	I
9	0V	10	DRIVE SELECT 0	O
11	0V	12	DRIVE SELECT 1	O
13	0V	14	nc	-
15	0V	16	MOTOR ON	O
17	0V	18	DIRIN	O
19	0V	20	STEP	O
21	0V	22	WRITE DATA	O
23	0V	24	WRITE GATE	O
25	0V	26	TRACK 0	I
27	0V	28	WRITE PROTECT	I
29	0V	30	READ DATA	I
31	0V	32	SIDE 1	O
33	0V	34	DISC CHANGE	I

I = Input from drive to PCB

O = Output from PCB to drive

Serial port

Connection to the serial port is via a 9-way D-type socket. See *Sockets* on page 1-21 for details of the pinout. The serial port UART, integrated in the 82C711, is a NS16450 compatible design. The line drivers and receivers meet the EIA RS-232C and CCITT V.28 interface specifications. The line driver output voltage swing is greater than ±5V with all outputs driving a 3KΩ load, the minimum impedance allowed. The line driver characteristics ensure reliable operation up to 19200 baud, provided that the load capacitance does not exceed the RS-232/V.28 recommended limit of 2500pF (i.e. a few metres of cable).

The 16450 UART can be programmed to operate at the baud rates shown in *Table 1.8*. Operation at baud rates greater than 19200 baud may only be possible using a low capacitance, short cable length.

Note that the operating system does not support the two highest baud rates.

The UART's programmable baud rate generator is clocked at 1.8462MHz (the 82C711 24MHz crystal oscillator, divided by 13). The transmitter and receiver sections of the UART produce the selected baud rate by further division of the clock. The same baud rate is used for receiving and transmitting serial data. Split baud rates are not supported.

Other programmable features of the UART include:

- 5 to 8-bit character size
- 1, 1.5 or 2 stop bits
- parity bit.

For backwards compatibility the software interface is an extended version of the RISC OS 2 serial port interface, used by Archimedes computers with a 65C51 UART.

Table 1.8: Serial port baud rates

Baud Rate	Percentage error
50	0.001
75	0.002
110	0.002
134.5	0.004
150	0.002
300	0.002
600	0.002
1200	0.002
1800	0.002
2000	0.005
2400	0.002
3600	0.002
4800	0.002
7200	0.002
9600	0.002
19200	0.002
38400	0.002
56000	0.030

Parallel port

The parallel port is an IBM PC-XT/AT compatible design with PS/2 like bi-directional capability. It can be configured via software for output only (printer application) or input/output (e.g. scanner application). The data bus is capable of sinking 24mA and the control signals ($\overline{STROBE}$, $\overline{SLCTIN}$, $\overline{INIT}$ and $\overline{AUTOFD}$) are open collector outputs capable of sinking 24mA. These control signals are driven in both input and output mode whilst the control signals $\overline{ACK}$, BUSY, PE, SLCT and $\overline{ERROR}$ are always input signals.

Parallel port Interrupt

The Parallel port interrupt signal $\overline{PINTR}$, generated by the 82C711, is latched in the ARM250. The internal latched signal, $\overline{LPINTR}$, is connected to IL6 of IOC. $\overline{LPINTR}$ is latched on the rising edge of $\overline{PINTR}$, which corresponds to the falling edge of $\overline{ACK}$ ($\overline{PINTR}$ is programmed to be active low, in the 82C711). Once latched, $\overline{LPINTR}$ may be cleared by a read or write to the Printer Clear register (&3350058).

Floppy disc drive

The computer is equipped with a 3.5 inch floppy disc drive. The 1 inch high unit accepts double-sided double-density (800KByte formatted) or quad-density (1.6MB formatted) 3.5 inch floppy discs.

Operation of interface

Hardware

The floppy disc section of the 82C711 is a clone of the '765 floppy disc controller, used in IBM PCs and compatibles.

There are several differences in operation between the 82C711 based interface and the 1772 floppy disc controller interface used in previous Archimedes machines:

- The 82C711 formats a disc with an INDEX Address field after the physical $\overline{INDEX}$ pulse.
- There is no read track command in the 82C711 command set.
- The PC-AT drive interface does not have/use the drive READY signal.
- The skew between top and bottom sides of a disc must be an integral number of sectors.

The READY signal available on older floppy drives is not present on the majority of modern 1MB and 2MB drives (or planned 4MB ones). Instead the repetition period of the $\overline{INDEX}$ signal is measured to establish when the drive is ready i.e. at the correct rotational speed. In this way there is a common method of determining when a drive is ready for all types of drive.

IOC registers

Most I/O functions operate through IOC which is integrated into the ARM250. IOC includes three counter/timers and the keyboard serial interface (KART). IOC controls all system interrupts. Individual interrupt sources can be masked or enabled by programming IOC registers. The top 2MB of the I/O address space is controlled by IOC, which decodes select lines for internal and external devices.

Table 1.1: IOC register memory map

Address	Read	Write
3200000H	Control	Control
3200004H	Serial Rx Data	Serial Tx Data
3200010H	IRQ status A	-
3200014H	IRQ request A	IRQ clear
3200018H	IRQ mask A	IRQ mask A
3200020H	IRQ status B	-
3200024H	IRQ request B	-
3200028H	IRQ mask B	IRQ mask B
3200030H	FIQ status	-
3200034H	FIQ request	-
3200038H	FIQ mask	FIQ mask
3200040H	T0 count Low	T0 latch Low
3200044H	T0 count High	T0 latch High
3200048H	-	T0 go command
320004CH	-	T0 latch command
3200050H	T1 count Low	T1 latch Low
3200054H	T1 count High	T1 latch High
3200058H	-	T1 go command
320005CH	-	T1 latch command
3200060H	T2 count Low	T2 latch Low
3200064H	T2 count High	T2 latch High
3200068H	-	T2 go command
320006CH	-	T2 latch command
3200070H	T3 count Low	T3 latch Low
3200074H	T3 count High	T3 latch High
3200078H	-	T3 go command
320007CH	-	T3 latch command

Table 1.2: Peripheral device addresses

Cycle type	Base address	Use
Slow	&3244000	Expansion slot PS1
Med	&32C4000	Expansion slot PS1
Fast	&3344000	Expansion slot PS1
Sync	&33C4000	Expansion slot PS1
8MHz	&3004000	Expansion slot MS1
Slow	&3240000	PS0 not decoded. Reserved for network expansion e.g.Ethernet
Med	&32C0000	
Fast	&3340000	
Sync	&33C0000	
Slow	&3220000	S2 reserved for network expansion e.g. Econet
Med	&32A0000	
Fast	&3320000	
Sync	&33A0000	
8MHz	&3000000	MS0
Fast	&3350048	Video Control Latch
Fast	&3350050	Device ID Register
Fast	&3350058	Printer Clear Register
Fast	&3350070	Monitor Type Register
Fast	&3350078	Joystick port 1
Fast	&335007C	Joystick port 2
12Mhz	&3010000	82C711 general
12Mhz	&3012000	Floppy disc DACK
12Mhz	&302A000	Floppy disc TC/DACK

ARM2as receives two independent interrupt requests, IRQ and FIQ, from IOC. Interrupt requests can be caused by events inside IOC or by changes on IOC interrupt or control port pins.

Four types of IOC register manage interrupts:

- status
- mask
- request
- clear.

The status registers indicate the current state of the various interrupt sources. The mask registers determine which source can generate an interrupt. The request registers are the logical AND of the status and mask registers and indicate which source is generating an interrupt request. The clear register is used to clear internally latched interrupt requests. The mask registers are undefined after power up.

IOC Interrupt Events´

- Timer interrupts TM[0:1]
- Power-on reset POR
- Keyboard Rx data available SRx
- Keyboard Tx data register empty STx
- Force interrupts 1.

Memory system

The main memory uses DRAM driven directly by the ARM250. Memory components are controlled by the MEMC1a block. To maximise memory bandwidth, fast page access is used whenever a number of sequential DRAM addresses are to be accessed, either by the processor or during a DMA read. The first memory access in a sequence is a normal memory cycle (N cycle) where both the row and column addresses are strobed into the DRAMs. Subsequent sequential memory accesses use 'short' page mode cycles (S cycles) where the previous row address is used, and only the column address is strobed into the DRAM.

The memory system runs at 12MHz and uses 70ns or 80ns DRAMS (check manufacturers' timing parameters). The ROM access time is programmed at power up to three ticks i.e. 250ns for 200ns ROMs.

A3010

There is 1MB of surface mount 256Kx16 DRAM on the main PCB. A second 1MB (2MB total) can be installed in sockets on the PCB, using 256Kx16 ZIP devices. Link options allow the surface mounted memory to be disabled, and for RA9 to be routed to the ZIP socket. This makes it possible to design a 4Mbyte memory module which can connect to the ZIP memory footprint.

Note any design for a 4MB memory upgrade must ensure that the power used is no more than that of a 2MB memory model. This is most easily checked by measuring the PCB current consumption of each version while running a DRAM memory intensive program, such as a memory function test. Any memory module must not introduce excessive loading of the DRAM signals or degrade the signal by causing increased over/under-shoot.

DRAM link options (A3010) on page 1-20 gives the link positions for various memory sizes.

A3020 and A4000

These models have 2MB of surface mounted memory (256Kx16). The main PCB also has sockets for an additional 2MB (total 4MB) of memory using ZIP 512Kx8 devices.

DRAM link options (A3020, A4000) on page 1-20 gives the link positions for the two memory sizes.

ROM (Read Only Memory)

The OS software is held in 2MB of mask ROM. Two ROM ICs are used, each providing 16 data bits. The pair of ROMs are selected by the $\overline{\text{ROMCS}}$ signal from ARM250.

The ROMs can be disabled, for system testing, by pulling their $\overline{\text{OE}}$ pin to logic 1. Normally $\overline{\text{OE}}$ is held at 0V by a pull down resistor. $\overline{\text{ROMCS}}$ is generated inside the ARM250 by the MEMC1a block. After reset, the signal enables the

ROMs for all read cycles (until an address higher than 32MB is accessed) allowing the reset vector code to be read from ROM.

I/O system

This section is included to give a general understanding of the I/O system. The I/O system should not be programmed directly. Implementation details are liable to change at any time and only the published software interfaces should be used to manipulate the I/O system. Archimedes computers use different I/O system designs, in particular the address location (and number) of expansion cards vary. To ensure that expansion card driver software will work with any slot number, the code must be relocatable. References to the expansion card addresses should never be used. It is up to the machine operating system, in conjunction with the expansion card ID, to determine the address at which an expansion card is accessed. With this in mind, some of the following sections are for background information only.

A full description of the expansion interface is given in the *Acorn expansion card specification* (part No. 0472,200).

System architecture

The I/O system (which includes the expansion card) has an 8-bit data bus (BD[0:7]) a buffered address bus (LA[2:21]) and various control and timing signals. The I/O data bus is independent of the 32-bit system data bus, being separated from it by latching bi-directional buffers (in the ARM250). The I/O data bus runs slower than the system bus to cater for slow peripheral devices. MEMC1a generates an IORQ signal to start an I/O cycle. 4MB of the 64MB address space is allocated to I/O devices.

The A3020 and A4000 models have a 16-bit I/O interface to the IDE hard disc connector (which is the only 16-bit I/O device). Two buffer ICs are used to connect the extended I/O bus to the ARM250 memory adata bus.

Data bus mapping

The main I/O data bus, BD[0:7], is 8 bits wide, so only 8-bit I/O cards are supported. The mapping of the BD[0:7] bus onto the memory/CPU data bus, D[0:31], is as follows:

- During a WRITE (i.e. ARM250 to peripheral) D[16:23] is routed to BD[0:7].
- During a READ (i.e. peripheral to ARM250) BD[0:7] is routed to D[0:7].

The extended hard disc I/O data path maps as follows (not applicable to A3010):

WRITE	D[24:31] to BD[8:15]
READ	BD[8:15] to D[8:15]

ARM250

Most of the computer electronics are integrated into a single IC, the ARM250. ARM250 comprises an ARM2as processor, MEMC1a memory controller, VIDC1a video/sound generator and an IOC input/output support unit. Also included are address latches, I/O data latches (8 bit), clock dividers and multiplexers and logic to connect the 8 MHz I/O system with the 12MHz processor/memory system.

ARM2as is a static version of the ARM2 processor used in A3000 computers. It is a pipelined, 32-bit reduced instruction set microprocessor which accepts instructions and manipulates data via a high speed 32-bit data bus and a 26-bit address bus, giving a 64MB uniform address space. The ARM2as supports virtual memory systems using a simple but powerful instruction set with good high-level language compiler support.

There are a few differences between the ARM250 (ARM2as) and ARM2 processors. Programs which follow the *RISC OS 3 Style Guide* should run on either. The guidelines are set out in the *RISCO OS 3 Programmer's reference manual*. Pay particular attention to the section *Static ARM program constraints*.

Up to 4MB of DRAM can be connected to the ARM250. MEMC1a provides the DRAM interface signals and carries out DRAM refresh operations. A logical to physical translator maps the physical memory into a 32MB logical address space (with three levels of protection) allowing virtual memory and multi-tasking operations to be implemented. To increase memory bandwidth, the majority of DRAM cycles are page mode (short cycle). Normal DRAM cycles write out a row and column address to the DRAM; short cycles just write out a column address. A maximum of 3 short cycles follows a normal cycle.

Input/Output devices are memory mapped. MEMC1a decodes a 4MB space for I/O components, and generates an IORQ signal to identify the access as an I/O cycle. An IOGT signal must be returned, by the selected I/O device, to end the I/O cycle.

I/O cycles must be less than 10µs long.

IOC, the system I/O controller, occupies the top 2MB of I/O space. IOC contains interrupt management registers, three timers and a serial interface, used for communication with the keyboard micro-controller.

The system address space is decoded into sections by MEMC1a. The address map is shown in *Figure 1.2* on page 1-3.

Address decoders in IOC generate device select lines for internal and external logic. There are four types of I/O cycle managed by IOC, slow, medium, fast and 2MHz synchronous. The cycle type is selected by the I/O address used. All IOC related operations are referenced to the I/O system 8MHz clock, REF8M.

Logic in the ARM250 samples control signals linking the I/O system and MEMC1a, and re-times them to allow the I/O system and MEMC1a to operate at different clock speeds.

The ARM250 includes logic to control the I/O Data latch 'hold' signals $\overline{WBL}$ and $\overline{BI}$. $\overline{BI}$ is an open drain I/O signal, which may be driven by expansion card logic. Separate latch output enables are generated for read and write cycles. The $\overline{WBE}$ signal turns on the write buffer (CPU to I/O), and the $\overline{RBE}$ signal turns on the read buffer (I/O to CPU).

The remaining major function in the ARM250 is video and sound generation by the VIDC1a block. VIDC1a includes a versatile CRTC (cathode ray tube controller), a 13-bit colour palette, three 4-bit video DACs, a programmable cursor and a sound generator based on a exponential 8-bit DAC (digital to analogue converter). The sound DAC is time division multiplexed to create an eight-channel, seven-position stereo signal. Data for the video, cursor and sound units pass through three separate FIFO (first in first out) buffers. The buffers are loaded from DRAM in blocks of four 32-bit words, by high priority DMA transfers. This efficiently uses paged-mode DRAM and avoids locking up the system data bus for long periods. The DMA address generators are in MEMC1a. They provide a circular buffer for video data, a linear buffer for cursor data and a double buffer for sound data.

System timing

The 72MHz master clock is divided down to generate 36MHz, 24MHz and 12MHz. The 24MHz clock is divided by three to produce an 8MHz clock, REF8M, used by IOC and the expansion bus. MEMC1a is clocked at 36MHz, so the ARM2as processor and the memory system operate at 12MHz. The 12MHz clock drives the keyboard controller. IOC generates a 2MHz clock from the REF8M clock, which is used for synchronous I/O cycles.

The video clock for VIDC1a is selected in ARM250 from either 24MHz, 25.175MHz or 36MHz. The clock chosen depends on the video mode selected (i.e. 24MHz for TV frequency modes, 25.175MHz for VGA modes and 36MHz for Super VGA modes). A 25.175MHz Crystal oscillator is used for the VGA video clock.

A 24MHz crystal provides a local clock for the 82C711, which uses that as the reference for its serial port baud rate generator and the floppy disc controller.

The Real Time Clock (RTC) IC uses a 32.768KHz crystal for timekeeping.

About this manual

This manual is intended as a hardware reference manual for the Acorn A3010/A3020/A4000.

This manual supplements the basic information given on system hardware in the *Welcome Guide*.

The operating system is covered at the user level in the *RISC OS 3 User and Applications Guide*, supplied with the computer (also available for separate purchase). Programmers and users requiring a greater depth of information about RISC OS will also need the *RISC OS 3 Programmer's Reference Manual*, which is available from Acorn authorised dealers.

Full details on the ARM250as can be obtained from:

Advanced RISC Machines Limited
Park End
Swaffham Bulbeck
Cambridge CB5 0NA
England

Information on the component parts of the ARM250as (VIDC1a, MEMC1a and IOC) are given in the *ARM Family Data Manual, ISBN 0-13-781618-9*, available from:

VLSI Technology, Inc.
Application Specific Logic Products Division
8375 South River Parkway
Tempe, AZ 85284
USA
602-752-8574

or from the VLSI national distributor.

Details on the 82C711 chip are available from:

Chips and Technology Inc.
3050 Zanker Road
San Jose, CA 95134
USA

Note: This manual describes various PCB assemblies. The issue of each PCB is as defined by the relevant schematic.

Safety

These machines have been designed and certified to meet the requirements of the safety standard EN60950/BS7002. In order to meet the flammability requirements of this standard, the machines are protected by a fire enclosure and utilise flame-retardent components. As such, they should not be operated without all of the case plastics and metalwork securely fitted in place. In addition, any upgrades or modifications must not compromise these safety measures. For further advice see the *Acorn expansion card specification* (Part number 0472,200).

User-accessible areas

The A4000 is powered by a normal, self-contained, switch-mode psu, which allows the user unrestricted access to all of the machine's internal area (with the exception of the psu itself).

The A3010 and A3020 are powered by a transformer and smoothing circuitry built onto the single pcb. This means that there are hazardous voltages present on both sides of the pcb. Access to this dangerous area is restricted by the metal internal case, which is secured by an allen-headed screw. This requires the use of a non household tool to remove it and it should only be replaced with a similar type.

The user is further discouraged from separating the internal case by a warning label.

Untrained personnel are discouraged from entering this area, as it is highly dangerous.